Marieke Schuppert

Symptoms of Borderline Personality Disorder in Adolescents

Assessment, treatment, and parental factors

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Voor alle jongeren
die dagelijks proberen te overleven
op een stormachtige zee

Schuppert, HM
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Stellingen

behorende bij het proefschrift

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1. Evenals bij volwassenen, is het goed mogelijk de ernst van borderline persoonlijkheidsstoornis (BPS) symptomen in kaart te brengen bij adolescenten. *(dit proefschrift)*

2. Specifieke meetinstrumenten en gerichte interventies voor (kenmerken van) BPS in de adolescentie, bieden hulpverleners de kans de 'o jee'-premisse om te buigen naar 'o ja'. *(dit proefschrift)*

3. De Emotieregulatie Training (ERT) heeft in haar huidige vorm geen meerwaarde boven de reguliere zorg voor jongeren met BPS symptomen. Dat geldt zowel ten aanzien van de ernst van de BPS symptomen, de algemene psychopathologie, als de kwaliteit van leven. *(dit proefschrift)*

4. Significante afname van de mate van ernst van BPS kenmerken na een kortdurende behandeling is een positieve en hoopvolle bevinding. Het is echter niet uitgesloten dat dit een weerspiegeling is van het natuurlijke beloop van BPS in de adolescentie. *(dit proefschrift)*

5. De lage drop-out in de gepresenteerde studies kan gezien worden als een positieve indicatie voor de haalbaarheid en wenselijkheid van leeftijdsspecifieke behandelinterventies voor BPS symptomen in de adolescentie. *(dit proefschrift)*

6. Opvoedingsstress bij moeders hangt niet samen met de mate van ernst van BPS kenmerken bij hun kinderen. Daarentegen hangt een afwijzende manier van opvoeden wel samen met opvoedingsstress. *(dit proefschrift)*

7. Adolescenten met symptomen van BPS hebben een grotere kans opgevoed te zijn door een overbeschermende moeder. Het is onduidelijk of deze overbescherming leidt tot meer c.q. ernstiger BPS symptomen, of dat adolescenten met BPS symptomen door hun heftige emoties en gedrag meer overbescherming oproepen. *(dit proefschrift)*

8. Het verbinden van consequenties aan negatieve onderzoeksresultaten is nog lastiger dan het onderkennen van deze resultaten.

9. Early intervention programs for borderline personality disorder should prevent poor outcomes, not diagnostic categories. *(Andrew Chanen, 2012)*

10. It is our choices that show what we truly are, far more than our abilities. *(Prof. A.P.W.B. Dumbledore, 1999)*

11. Alles, was man tun muß, ist, die richtige Taste zum richtigen Zeitpunkt zu treffen. *(Johann Sebastian Bach, 1685-1750)*

12. Kunst kruidt het leven.

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Chapter 1 Introduction

Personality is a complex concept that refers to a broad range of individual differences in the way people tend to think, feel and act. Personality traits (like for instance extraversion, neuroticism and conscientiousness) can be recognized at an early age and are moderately stable (de Fruyt et al., 2006; Shiner, 2005). In a large meta-analysis, Roberts and DelVecchio (2000; Roberts, Walton, and Viechtbauer, 2006) found that trait consistency increases steadily over the years: from .31 in childhood to .54 in young adults, to .64 at age 30 and .74 between 50 and 70 years. Although there is moderate personality stability already in childhood, there is also considerable personality change (Specht, Egloff, and Schmukle, 2011). In general, trait profiles are not pathological. Both adaptive and maladaptive personality patterns can be described in domains of functioning, like impulsivity, emotional lability/instability, or interpersonal functioning (Livesley, 2012). Extreme traits can be associated with an increased risk for personality pathology and related disorders. Though the symptoms in children are not necessarily the same as in adults, childhood antecedents of personality disorders can be well determined (Mervielde et al., 2005; Paris, 2003).

For many years, both clinicians and researchers have been reluctant in diagnosing personality disorders (PD) before age 18. One of the arguments was that personality is still developing during adolescence, and that symptoms are not stable enough to fit a valid and reliable diagnosis. In clinical practice, mental health professionals are still hesitating in diagnosing PDs in young people. DSM-IV-TR (APA, 2000) discourages the diagnosis of PDs in youngsters. One of the consequences of this reluctance is that relatively little research has been done on (symptoms of) PDs in adolescence, and, more specifically, on borderline personality disorder (BPD) (Crick, Murray-Close, and Woods, 2005; Paris, 2003). Yet, DSM-IV provides the opportunity to diagnose (B)PD when there is a pervasive, persistent pattern of maladaptive personality traits, that must have been present for at least one year, and is not likely to be limited to a particular developmental stage or Axis I disorder (APA, 2000). Another consequence of the restraints about diagnosing (B)PD at an early age, is that very little age-specific treatments have been developed and evaluated (Chanen, Jovev, McCutcheon, Jackson, and McGorry, 2008b).

In recent decades, the development of BPD has increasingly become a focus of interest. Several studies have now found ample evidence for a reliable and valid diagnosis in adolescence (e.g. Crawford et al., 2008; Paris, 2003; Miller, Muehlenkamp, and Jacoboson, 2008). In an epidemiological study, BPD in adolescence was found to be a predictor for psychopathology and psychosocial dysfunctioning later in life. For instance, in a 20 year follow-up study (Children

in the Community Study, CIC), Winograd, Cohen and Chen (2008) found that borderline symptoms at mean age 13.7 years predicted lower social functioning and life satisfaction, lower academic and occupational attainment, less partner involvement, and a higher consumption of health care services.
Despite the growing body of evidence for a reliable diagnosis of BPD in adolescence, and the serious adverse consequences associated with it, only few age-specific therapeutic interventions have been developed for the treatment of BPD symptoms in youth (Chanen and Kaess, 2012).

Epidemiology
The prevalence of BPD in the general adult population is estimated at 0.7 to 5.9% (Coid, Yang, Tyrer, Roberts, and Ulrich, 2006; Grant et al., 2008; Lenzenweger, Lane, Loranger, and Kessler, 2007). Reliable figures for the prevalence of BPD in adolescence are not available. Studies vary widely in the use of measures (interviews or questionnaires), which may be an explanation for the large differences in prevalence estimates (Emmelkamp and Kamphuis, 2007). Figures vary from 0.9% in an adolescent population study (Lewinsohn, Rohde, Seeley, and Klein, 1997) to 3% - 10.8% in a longitudinal study (Cohen, Crawford, Johnson, and Kasen, 2005), and 10%-14% in a survey among high school students (Chabrol, Montovany, Chouicha, Callahan, and Mullet, 2001; Chabrol et al., 2004). Not surprisingly, prevalence rates in clinical adolescent samples were even higher, ranging from 22% in an in- and outpatient sample of 23 affectively ill patients (Brent, Zelenak, Bukstein, and Brown, 1990), to 28% in a sample of 296 psychiatric in- and outpatients (Westen, Shedler, Durrett, Glass, and Martens, 2003), to as high as 49% in a sample of 138 psychiatric inpatients (Becker, Grilo, Edell, and McGlashan, 2000).
To conclude, these figures suggest that the prevalence of BPD in adolescence may be at least as high as in adulthood (Lenzenweger, 2008).

Course and outcome
A number of studies indicate differences between adolescents with BPD traits and adolescents who meet criteria for other axis II or axis I disorders (e.g. Bondurant, Greenfield, and Tse, 2004; Chanen, Jovev, and Jackson, 2007; Johnson et al., 2000; Westen et al., 2003). Significantly higher levels of abuse and neglect have been found, next to significant higher impairment and distress on various domains (e.g. elevated risks for substance abuse, risky sexual behavior, frequent police contacts, premature school dropout, and suicide).
It has long been argued that personality disorders develop during childhood and

adolescence, and are stable during adulthood. In DSM-IV, stability of symptoms is one of the criteria to distinguish axis II disorders from axis I disorders. However, research has now shown that symptoms of (B)PD are less stable than was previously thought. In a review, Clark (2007) concludes that the structure of personality disorders is relatively stable as early as adolescence, with more change in level and scatter than in profile shape. Thus, change in personality pathology is in the first place a quantitative matter, more than qualitative (Clark, 2007). Zanarini, Frankenburg, Hennen, Reich, and Silk (2005) propose a comparable model. They divide the symptoms of BPD into two groups: acute symptoms that require immediate and expensive forms of treatment (e.g. temper tantrums, suicide threats and suicide attempts, or self-mutilation), and temperamental symptoms (e.g. chronic feelings of anger, or chronic fear for abandonment), that are associated with long-term psychosocial impairment. Acute symptoms tend to decline relatively quickly, while the temperamental factors resolve more slowly. Lenzenweger, Johnson, and Willet (2004) conducted a four-year follow-up study on 250 subjects (mean age 18.9), with increased levels of PD traits. They found considerable variation across individuals over time. Looking more closely at the course of PD traits, there is evidence that acute symptoms tend to decline over time, where temperamental factors are more persistent (Johnson et al., 2000; Skodol et al., 2005; Zanarini et al., 2005). The research findings in the last decades will lead to major changes in DSM-5 (website APA, updated June 21, 2011; www.dsm5.org). Next to the description of personality disorders types (their number will presumably be reduced to 6), several other conditions must be met before a PD can be diagnosed. Moreover, impairment in, for instance, the level of personality functioning has to be assessed and scored on a scale.

Despite of the decline of the number of personality disorder traits over time, the consequences for long term functioning are serious. One of the best studies in the past decades examining this matter, is the 'Children in the Community Study' (Bezirganian, Cohen, and Brook, 1993; Cohen et al., 2005; Crawford et al., 2008; Johnson, Cohen, Brown, Smailes, and Bernstein, 1999; Johnson, Cohen, Chen, Kasen, and Brook, 2006), where approximately 800 children and their parents were followed over 20 years. As mentioned before, borderline symptoms in adolescence predicted adverse outcome on several domains of social functioning. Besides, youth with borderline symptoms fulfilled more BPD criteria, more axis I disorders (especially mood disorders and addiction), and showed more general impairment at 20 years follow-up.

Joanna

Joanna is a 16-year old schoolgirl. She is admitted to the outpatient department for child- and adolescent psychiatry because of recurrent self mutilation and an unbearable home situation. The first time she comes to the hospital, she is accompanied by her mother. Her parents are divorced a year ago and Joanna moved with her mother to the other side of the country. Joanna didn't approve with the move: she preferred to stay with her father, in order to stay in touch with her friends and to finish high school. Her parents decided differently, because her father works as an engineer in shifts, and is at times at work over night. Joanna feels isolated in her new environment and she feels she's different then her classmates. She tried to adapt to their habits, but she has the feeling that she did not succeed. She felt more and more isolated and started to skip classes after a few weeks. Then she started to leave home in the morning at her usual time, returning immediately after her mother left for work. When her mother found out, Joanna was outrageous, shouting and threatening to kill herself. In the last weeks, the temper tantrums became more frequent. Recently, she started to overcome her feelings of emptiness by cutting herself in her arms and eating increasing amounts of food.

Aetiology of BPD

Personality disorders are generally considered to have their origin in multiple causes. Three main factors can be distinguished: biological factors (including genetic predispositions), psychological stressors, and social factors (for a recent review, see Chanen and Kaess, 2012).

Personality traits are heritable to a certain degree, and so are personality disorders. Twin studies with adult BPD patients have shown inconsistent results: heritability estimates have been found up to 69% (Torgersen et al., 2000), but more recent studies report a range from 35% to 45% (Distel et al., 2011; Kendler et al., 2008; Torgersen et al., 2008). Bornovalova, Hicks, Iaconon, and McGue (2009) conducted a longitudinal study with adolescent twins over a period of 10 years, with time intervals of 3-4 years (N differs per assessment, N=617 to N=1492). They concluded that genetic factors play a greater role in both stability and change of borderline traits, compared to environmental factors. Gunderson et al. (2011) conducted a family study with 132 BPD probands, 134 controls without BPD, and 102 probands with a lifetime diagnosis of major depressive disorder (MDD). They concluded that BPD (and its four main characteristics: affective, interpersonal, behavioural, and cognitive symptoms) aggregates in families. In a large multivariate twin modelling study, Kendler et al. (2008) concluded that

genetic risk factors for personality disorders do not reflect the current typology in DSM-IV. One genetic factor reflected vulnerability and/or negative emotionality for personality disorders in general. Two more specific genetic factors indicated high impulsivity/low agreeableness, and introversion. However, no specific genes have yet been identified in relation to BPD. More recently, research focused on the interaction between genes and environment. Specific environmental life events have been identified that moderate the genetic and environmental interaction on BPD features (Distel et al., 2011). Among these factors are e.g. being a victim of sexual and/or violent assault, job loss, or divorce. Individuals who were exposed to one of these life events, showed higher environmental variance for BPD features, leading to a lower heritability of BPD features. Also, a correlation between genes and environment was found for some life events. This indicates that the genes influencing BPD features, also increase the risk to be exposed to certain life events (Distel et al., 2011). However, the risk factors that have been identified, are not suggestive of a specific psychopathological pathway to BPD. Comparable findings have been described in research on MDD and post-traumatic stress disorder, identifying the same kind of environmental risk factors in combination with genetic factors (Sartor et al., 2012).

Other biological factors have been found in the neurotransmitting system and in brain structures that are related to behavioural and affective symptoms of the disorder. For example, opioids are involved in feelings of pleasure or soothing, but also in stress responses and sadness. Oxytocin is associated with attachment, the ability to trust others, and to read social interactions, whereas vasopressin has been implicated with aggression regulation, especially in intimate relationships (for an overview see Stanley and Siever, 2010). Disturbances in these three systems have been found in BPD patients, but replication of the investigations and additional research is needed to obtain a better understanding of the neurobiological basis of BPD. For example, little is known about the 'post or propter' of these findings (whether disturbances in neuropeptides are preceding borderline personality disorder or whether they are a consequence of the disorder, a consequence of life events, or a combination of factors), since there is hardly any (longitudinal) research on this subject in children and adolescents. Few structural neuroimaging studies have been published in adolescent BPD, but no functional neuroimaging studies (Chanen and Kaess, 2012). Reduced orbitofrontal cortex volumes and decreased anterior cingulate cortex volume were found. Findings in adult BPD neuroimaging studies (like structural changes in the corpus callosum, and reduction of hippocampal or amygdala volumes) could not be demonstrated in adolescents. Research findings are often limited to correlations, and future

research should focus on possible mechanisms of causality (Rutter, 2009). To conclude, recent findings of neurobiological studies are interesting and promising, and shed a new light on the development of (borderline) personality disorders. However, the findings are contradictory and inconclusive, and further research is needed to unravel this complex field.

The association between psychosocial factors and an increased risk for BPD has not only been found in research on genetic factors. A history of early childhood trauma, neglect, sexual abuse and/or maltreatment is strongly related to the development of BPD symptoms, as well as growing up in a dysfunctional family or with a parent with psychopathology (Johnson et al., 1999; Paris, 2003; Silk, Lee, Hill, and Lohr, 1995; Zanarini et al., 1997). Most of these studies have used retrospective information, which probably will have caused a recall bias (Hufford and Shiffman, 2003). Another complicating factor is the fact that many of the possible risk factors are highly correlated, and difficult to disentangle (Bradley, Jenei, and Westen, 2005). As mentioned before, some studies found an interaction between genetic factors and environmental factors (Distel et al., 2011; Kendler et al., 2008). BPD symptoms were increased in adolescents with a history of sexual assault, even with less genetic vulnerability. Prospective studies on environmental risk factors are scarce. Again, these risk factors are not very specific for the development of BPD, but have also been found in other psychiatric disorders like depression and anxiety disorders (Hovens et al., 2012).

Few empirical studies have been conducted exploring social factors. Paris (2003) suggests that the prevalence of disorders characterized by affective instability and impulsivity (e.g. BPD and antisocial personality disorder) will likely increase when there is less cohesion in a society. The current Western society is considered to be more individual based, with less fixed social roles, and more unpredictable family environments, which is especially challenging for instable BPD patients (Giesen-Bloo, 2006; Paris, 2003).

An interaction between biological and psychosocial factors is considered to provide the best explanation of the development of BPD (Distel et al. 2010; Leichsenring, Leibing, Kruse, New, and Leweke, 2011; Linehan, 1996; Paris, 2003).

Borderline pathology or normal developmental phase?

Adolescence is a developmental stage of changes in different fields: somatic, cognitive (for instance conceptual thinking), and social (maturity of identity, sexuality and autonomy) (Verhulst, 2005). In classical, popular as well as in clinical research literature, adolescence has been depicted as a period of 'Sturm-und-Drang', a phase of rapid mood swings, increased impulsivity, and experimental

behaviour. Youth is generally considered to be impulsive, stubborn and reckless. Such a period of struggle has long been regarded as an essential phase for the development of the self. However, research has shown that for the vast majority of adolescents (approximately 2/3), this developmental phase should not be characterized as a time of heavy turmoil, and that most adolescents manage to make the transition to adulthood without serious problems (Offer and Schonert-Reichl, 1992). In adolescence, there are more conflicts between parents and children, but for the majority of the youngsters these are limited to daily worries, like homework, time to get home, telephone bills, etcetera (Verhulst, 2005).
However, in spite of the fact that adolescence is usually not such an extreme turmoil time, it is a period of increased risk taking behavior (Crone, Bullens, van der Plas, Kijkuit, and Zelazo, 2008; Steinberg and Morris, 2001). The prevalence of suicide attempts is rather high (Lewinsohn, Rohde, and Seeley, 1996). Impulsivity, affect dysregulation and identity disturbance are, up to a certain level, normal developmental phenomena, and are mostly transient. Indeed, there is a decrease of risk taking behavior in the course of adolescence, and an increase of more rational decision making (Crone et al., 2008).
Especially in milder forms, it is often difficult to distinguish BPD from normal development, which complicates the diagnostic process. Duration and severity of the borderline symptoms, the disruption of family life, and the adverse consequences (e.g. premature drop-out from school, insufficient (peer) relationships) play a role in diagnostics. To prevent a stigma, many mental health workers choose to delay a formal diagnosis, and to label separate symptoms or clusters of symptoms (like emotional instability, or affect dysregulation) instead. However, early recognition and assessment is important in order to facilitate early interventions, and to prevent the long-term consequences (Chanen et al., 2008a). Moreover, it is not likely that BPD symptoms suddenly appear at one's 18th anniversary.
In a large community sample of 14-17 year old adolescents, spread over six western European countries and Australia (N=30.476), Madge et al. (2008) found a life-time prevalence of deliberate self-harm of 4.3% in boys and 13.5% in girls. Figures in the Netherlands were 2.4% for boys and 5.7% for girls. Though deliberate self-harm is quite common in adolescents, a significant percentage of them will not develop BPD in adulthood. On the other hand, self-harm in childhood or adolescence has been identified as an early risk marker for BPD (Zanarini, Frankenburg, Hennen, Reich, and Silk, 2006). It has been suggested that when an adolescent suffers from severe emotional dysregulation in combination with self-injurious behavior, suicidal behavior, and/or antisocial behavior, a spontaneous recovery is not to be expected (Meijer, 2000).

Joanna (2)
After the assessments at the outpatient department, and telephone contact with her mentor at school, Joanna is diagnosed with 'emotion regulation disorder'. Her psychiatrist hesitates in diagnosing BPD yet. Symptoms are severe, but started only a few months before. Also, other psychiatric diagnoses are considered. Joanna shows symptoms of affective disorder and eating disorder.

Assessment
Several structured personality disorder interviews have been developed for adults, such as the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II; First, Spitzer, Gibbon, Williams, and Benjamin, 1997; Weertman, Arntz, and Kerkhof, 2000), the Diagnostic Interview for BPD - revised version (DIB-R; Zanarini, Gunderson, and Frankenburg, 1989), or the Structured Interview for DSM-IV Personality (SIDP; Pfohl, Blum, and Zimmerman, 1997). Some instruments designed for the assessment of personality pathology in adults have now been adapted for adolescents. Westen et al. (2003) evaluated the Shedler-Westen Assessment Procedure for Adolescents (SWAP-200-A) and found good psychometric properties. An adolescent version of the Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ-A) has been evaluated by Tromp and Koot (2008). The Dimensional Personality Symptom Item Pool (DIPSI; de Clercq, de Fruyt, van Leeuwen, and Mervielde, 2006) has been developed for the assessment of trait pathology in childhood, and has been used in adolescent samples. These three instruments (SWAP-200-A, DAPP-BQ-A, and DIPSI) are developed to measure personality pathology in general, and are not specifically designed for the assessment of BPD symptoms in adolescents.
Few instruments to measure BPD in adolescents have been evaluated for this age group. The McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD; Zanarini et al., 2003c) and the Borderline Personality Questionnaire (BPQ; Poreh et al., 2006) have been evaluated in (young) adult samples. Chanen et al. (2008b) compared these instruments to the International Personality Disorder Examination Screener (IPDE-S; Loranger, 1999) and the BPD section of the Structured Clinical Interview for DSM-IV Axis II Personality Questionnaire (SCID-II PQ; First et al., 1997) in an outpatient adolescent sample. They found the BPQ being the most feasible for screening purposes.
All these instruments, both for adults and for adolescents, have in common that they assess long-term functioning, and are not suitable to assess the current severity of BPD symptoms or to detect short-term changes. Two semi-structured interviews have been developed to fill this gap (Zanarini et al., 2010): the Borderline

Personality Disorder Severity Index (BPDSI-IV; Arntz et al., 2003; Giesen-Bloo, Wachters, Schouten, and Arntz, 2010) and the Zanarini rating scale for Borderline Personality Disorder (ZAN-BPD; Zanarini, 2003b). Both instruments have been designed for the assessment of severity of BPD symptoms, and for the evaluation of treatment effect, but not for diagnostic purposes. Both instruments have shown good psychometric properties in adult BPD samples, but were never used under age 18.

As far as we know, there are no age-specific instruments to assess BPD severity or treatment-outcome in adolescents. Schuppert et al. (2009) used the BPDSI-IV in a pilot study to evaluate the effectiveness of an Emotion Regulation Group Training for adolescents with BPD symptoms. This instrument is designed to measure current severity of BPD symptoms over a period of three months, and is therefore appropriate for use both as a severity measure and as a treatment-outcome measure. The instrument needed some adaptations for use in an adolescent sample. Therefore, the BPDSI-IV-adolescent (BPDSI-IV-ado) version was developed, together with a version for parents. Chapter 2 describes the psychometric properties of these instruments. The possibility of measuring change over a short period could be of adjunctive value, considering the developmental stage and changes at this age.

Therapeutic interventions for BPD symptoms in adolescents

Considering the high prevalence and the adverse consequences of BPD symptoms in adolescence, there is an urgent need for early interventions. However, hardly any interventions have been developed for youth with BPD symptoms, and the few treatments that are available are poorly evaluated. The scarce data available, however, suggest that early interventions may lessen the burden, may prevent the development of full-blown BPD, and may reduce the negative psychosocial consequences in the long term (Chanen et al., 2008c; Miller, Muehlenkamp, and Jacobson, 2008).

Several therapeutic protocols have been developed for adult patients with BPD. Many of them have been evaluated in (randomized) clinical trials, and there is variable evidence for the effectiveness/efficacy of these treatments. The Dutch multidisciplinary guidelines for personality disorders (2008) consider Dialectical Behavior Therapy (DBT; Linehan, Armstrong, Suarez, Allmon, and Heard, 1991; Linehan et al., 2006; Verheul et al., 2003), Mentalization Based Therapy (MBT; Bateman and Fonagy, 1999, 2001), Schema Focused Therapy (SFT; Giesen-Bloo et al., 2006), Systems Training for Emotional Predictability and Problem Solving (STEPPS; Blum et al., 2008), and Transference Focused Psychotherapy

(TFP; Clarkin et al., 2001; Giesen-Bloo et al., 2006) as effective psychotherapeutic interventions for adult BPD patients. The guidelines of the English National Institute for Health and Clinical Excellence (NICE, 2009) however, are less specific in their recommendations. They emphasize the fact that most psychological therapy programs appear to be successful, but that randomized trials have been small and research is generally at an early stage. The guideline for treatment of patients with BPD from the American Psychiatric Association dates from 2001, and can therefore no longer be assumed to be current.
Some of the aforementioned interventions have been adapted to adolescents, but little research has been done to investigate the effectiveness with this population. Four treatment protocols for adolescents with BPD symptoms have been described in the literature. As far as we know, none of these has sufficiently been evaluated. To give an overview of the current treatment modules for adolescents with BPD symptoms, the four protocols will be briefly discussed here.

Cognitive Analytic Therapy (CAT)
Cognitive Analytic Therapy (Ryle, 2004) has been developed for adult BPD patients, and has been adapted in Australia (Chanen et al., 2008c) for a younger population. The protocol consists of 16-24 weekly individual sessions and uses elements of cognitive psychology and psychoanalytic object relations theory. The basic assumption in CAT is that patients with BPD (or BPD symptoms) have a history of insecure attachment early in life, combined with genetic vulnerability. The aim of the therapy is to identify and recognize dysfunctional patterns, especially in interpersonal relationships. The therapeutic alliance focuses on transference and countertransference. The central tenant is to link the past to present patterns of functioning, in a collaborative relationship with the therapist, in order to reformulate old damaging patterns and to develop more adaptive patterns (Ryle, 2004). CAT differs from more traditional psychodynamic therapies in using homework assignments and behavioral interventions (Bateman, Ryle, Fonagy, and Kerr, 2007). Moreover, CAT is a time-limited intervention.
Chanen et al. (2008c) conducted a randomized controlled trial with 86 adolescents (15-18 years), comparing CAT to standardized good clinical care (GCC consisted of standardized, team-based clinical care, using a common problem-solving model with extra modules for additional problems as needed (Chanen et al., 2008c). There were no significant differences between the two conditions, in terms of borderline symptoms and parasuicidal behavior. Both groups improved over time on the primary outcome measures (borderline personality disorder, social functioning, and parasuicidal behavior). Both groups improved significantly

on externalizing behavior (as measured by the Child Behavior Checklist); the CAT-group improved more rapidly than the control group.

Dialectical Behavioral Therapy for adolescents (DBT-A)

Dialectical Behavioral Therapy is a treatment method for suicidal behavior and BPD, developed in the nineties of the last century by Marsha Linehan (1996), and adapted to adolescents by Miller, Rathus, and Linehan (2007). Dialectics is the continuous process of unification (synthesis), proceeding from the tension between opposite poles (thesis and antithesis). In DBT the emphasis lies on the dialectical tension between acceptance and change. Emotional dysregulation is considered as the core symptom of the illness (Linehan, 1996).

DBT originally consists of weekly individual cognitive behavioral therapy, weekly group skills training, telephone consultation as needed, and weekly consultation meetings for the whole team. Adaptations for adolescents are additional family therapy and participation of one of the parents in the skills training. Much attention is paid to the therapeutic alliance. Further, the intensive phase of the treatment is limited to 16 weeks. After the skills training, DBT-A often continues in a less intensive way. The adolescent version is originally developed for outpatient treatment, but has been applied to other settings as well.

Research on DBT-A is limited to one quasi-experimental study (non-randomised, N=29 in the experimental group, and N=82 in the control group; Rathus and Miller, 2002) and a few uncontrolled pilot studies (for an overview see Backer, Miller, and van den Bosch, 2009). The results suggest that DBT-A is equally effective in the treatment of adolescents as in adults with regard to suicidality, BPD symptoms and possibly depressive symptoms. Further, the number of hospitalizations decreased, and the dropout rate was reasonably low. The conditions in these studies are very different, which makes a comparison hardly possible. However, the results up till now are promising, though randomized clinical trials are needed to confirm the preliminary findings to demonstrate that the specific treatment was indeed responsible for the change in symptomatology.

Mentalization Based Treatment for adolescents (MBT-A)

Mentalization Based Treatment is developed for adult BPD patients by Bateman and Fonagy (2004). MBT is based on psychodynamic theory, attachment theory and cognitive theory. Mentalizing is the capacity by which people can make sense of themselves and of each other, in the way that we are attentive to our own and others feelings, thoughts, desires and intentions. Mentalizing is insufficiently developed in patients with BPD, which increases the risk of emotional regulation

problems and interpersonal and impulsivity difficulties. The treatment aims to improve the capacity to mentalize, especially under stressful circumstances and in attachment relationships. The central focus of the treatment is to improve the capacity to mentalize, in order to improve agency, reflection and interpersonal relationships, and to stimulate more effective ways to manage vulnerability and difficulties (Bleiberg, Rossouw, and Sharp, 2011).
The adolescent version of MBT (MBT-A) focuses on five targets: to stimulate commitment, to reduce psychiatric symptoms, to decrease self destructive behavior, to improve interpersonal functioning, and to resume age specific developmental tasks. The program usually consists of a combination of group therapy and individual therapy. Parents and other relatives are always intensely involved in the treatment. Different applications of MBT-A have been developed in the USA, England and The Netherlands (Bleiberg et al., 2011; Hutsebaut, 2009).
MBT-A has not yet been evaluated in a RCT.

Emotion Regulation Training (ERT)
Emotion Regulation Training is a skills training for adolescents with BPD symptoms, developed by van Gemert, Ringrose, Schuppert, and Wiersema (2009a and 2009b). The major aim of the current dissertation was to evaluate the effectiveness of ERT for adolescents. In this paragraph, background, principles and content of the training will be discussed.
One of the motivations to develop an age-specific treatment program for adolescents with BPD symptoms, was that there were no such programs available in the Netherlands. It became clear that the subject of borderline pathology in adolescence had long been neglected for various reasons. However, in clinical practice, patients were seen with full syndrome or sub-syndromal BPD, sometimes as young as 13 or 14 years old. Both patients and their parents/caretakers were often desperate, and were disappointed by former diagnoses and treatment. Besides, therapists also had the feeling to be empty-handed.
A search through the international literature at that time (around 2001) did not provide much support, but there was growing evidence for a valid and reliable diagnosis of BPD before age 18 (for instance in the CIC study, e.g. Johnson et al., 1999). Based on the obtained information, van Gemert, Ringrose, and Wiersema (2007) decided to orientate on the available treatment modules for adult BPD patients. Several therapies were found to be developed in this field (see chapter 1). What they had in common, is that they were (1) developed for patients with a full DSM-IV BPD diagnosis, (2) intensive (often two or more contacts a week), (3) of long duration (at least one year), (4) developed for

the individual patient. These characteristics were considered to be less useful for an everyday adolescent population at an average outpatient mental health department. Most adolescents with BPD symptoms did not present with the full syndrome (yet). In quite a few cases, others (not the patient) had been insisting in searching treatment, and motivation of the adolescent was fragile. And last but not least, almost all adolescents lived with their parent(s) or caretaker(s). These arguments advocated a brief and time limited module, with the possibility to involve the patient's system. One treatment manual for adult BPD patients was found to meet these wishes: the System Training for Emotional Predictability and Problem-Solving (STEPPS) program, developed by Bartels and Crotty (and further adjusted by Blum; Black, Blum, and StJohn, 2009). This 20-week course for BPD patients can be added to treatment as usual, combines cognitive behavioral elements and skills training, and involves to some extent family members, partners and "important others" in the training. Today, several uncontrolled as well as controlled trials have been conducted and have shown moderate to good results (Black et al., 2009; Blum et al., 2008; Bos, van Wel, Appelo, and Verbraak, 2010). Considering these characteristics, the STEPPS program was used as the main source of inspiration for the development of ERT.
As in DBT-A, the core symptom addressed in ERT is emotional dysregulation (Putnam and Silk, 2005). The training aims to improve the locus of control over emotions and thoughts, and to increase responsible behavior. Contrary to DBT-A, ERT explicitly addresses also milder cases (e.g. sub-threshold BPD patients).

Description of the ERT program

After the pilot study (see chapter 3) the contents of the program have been adapted, based on the findings in the pilot. Cognitive behavioral therapy forms the central lead through the program, extended with elements of dialectical behavioral therapy. ERT consists of 17 weekly sessions, one psycho-education session with parents and relatives, and two follow-up sessions. Elements of cognitive behavioral therapy, DBT and relaxation exercises are used. The training is usually combined with individual psychotherapy, family therapy, and/or medication. For an overview of the current program, see table 1.
Each session starts with a group discussion about the homework assignments of the previous week. Participant use daily mood rating scales to obtain better insight in their mood swings and what triggers them. Next, the 'topic of the day' is introduced and after a short break, the group continues with own illustrations of the current topic. After relaxation exercises, the session ends with homework assignments for the next week.

Table 1: A session-by-session outline of the Emotion Regulation Training for adolescents

	Session number	Session content
Phase 1: psycho-education and cognitive model	1	Psycho-education regarding emotion dysregulation
	2	Introduction to cognitive model and behavioral chain analysis
	3	Automatic thoughts, basic assumptions, distortions
	4	Learning to recognize an emotional storm; introduction of skills training
	Systems meeting	Psycho-education for important system members, explanation of ERT principles
Phase 2: knowing yourself	5	Knowing yourself
	6	Using your self-knowledge, informing others about your problems
	7	Breaking out of an emotional storm
	8	Integration and validation of the previous sessions Recognizing and preventing emotional storms
Phase 3: lifestyle changes	9	Introduction of life-style and 'behavior modification plans' Detection of high-risk life-style areas
	10	Selection of subject for behavior modification plan
	11	Eating and sleeping
	12	Handling loneliness, and balance in school/work/recreation
	13	Personal and mental health hygiene (including self-injurious behavior)
	14	Money
	15	Interpersonal relationships I
	16	Interpersonal relationships II
Evaluation and booster sessions	17	Evaluation
	Two booster sessions	Review of ERT, review of 'modification plans', plans for the future

ERT consists of four phases. In the first phase the emphasis lies on psycho-education about emotional dysregulation (the adolescents preferred: "emotional storms"), and learning to recognize one's patterns of behavior and emotion. Subjects learn to use behavioral chain analysis and behavioral principles. Self-monitoring by using daily forms (e.g., to map mood swings, or emotional storms), is an important instrument for this.

The second phase involves 'knowing yourself'. This phase has been added on request of the first groups. Participants emphasized that they were not only member

of a group (e.g., 'borderline', or 'adolescent'), but above all they were individuals. We added this phase to meet the wish for the development of individuality in this age group. Participants are invited to discover their own temperament and character and to explore the influence of past experiences, present circumstances and personal plans for the future. This phase aims at improvement of locus of control and the development of self-awareness. A better insight in one's personal strengths and pitfalls can help to better regulate one's emotions and behavior.
In the third phase participants learn to use emotion regulation skills (e.g., taking a time out in difficult situations, or challenging distorted basic assumptions), followed by attention to several life style subjects. Special attention is paid to learning how to use other ways of coping instead of deliberate self-harm and other forms of self-destructive behavior. Subjects use "behavior modification plans", in which they first describe a problem, followed by description of the benefits and disadvantages of change, and next how to develop a way to solve the problem.
The last phase of the training consist of a final evaluation meeting and two booster sessions at six and twelve weeks follow-up.

CAT, DBT-A, MBT-A, and ERT

The four presented treatment modules for adolescents with BPD symptoms differ to a great extent, but also have a lot in common. Recognition and realization of the psychological vulnerability (or emotional dysregulation) is the first phase in all treatments. Next, all therapies aim to improve the therapeutic alliance, and to decrease treatment-interfering behavior and self-injurious behavior. Some kind of skills training is often applied. All treatment modules involve parents and relatives to some extent, though this is less explicitly described in CAT. DBT-A and ERT use a clear manual, while this is less explicit in MBT-A and CAT. DBT-A was explicitly developed for severe BPD problems in adolescence, while CAT and ERT emphasize the importance of also including milder cases. While there are positive indications for the effectiveness of all adolescent BPD treatments, this has not yet indisputably been demonstrated (Schuppert, van Gemert, Wiersema, and Nauta, 2012).
It is notable that the aim of all therapies is to enhance balance in the life of the adolescent with BPD symptoms, to diminish the black-and-white thinking, and to improve locus of control on emotions and behavior. Basic assumption is that expectation of improvement is reasonable, and that early interventions are needed to prevent the adverse consequences in the long term.
As posed before, RCT's and other treatment studies in the field of adolescent BPD are sparse and urgently needed. Chapter 3 and 4 report of two different multi-center randomized controlled trials on the treatment of BPD symptoms in

adolescence, with ERT as the treatment module. ERT has been applied in the outpatients departments of six different mental health centers in the North of The Netherlands. Chapter 3 describes the results of a randomized pilot study. Chapter 4 describes the results of a larger sample, and also explores possible predictors of treatment outcome.

Psychopharmacological treatment

There are no randomized, double-blinded, and/or placebo-controlled studies with adolescents with (symptoms of) BPD. However, medication is often prescribed, mostly based on trials with adult BPD patients, or based on clinical experience. The website of the Dutch Knowledge Centre for Child and Adolescent Psychiatry (www.kenniscentrum-kjp.nl) provides guidelines for psychopharmacology for adolescents with BPD. These guidelines are based on the Dutch multidisciplinary guidelines for personality disorders (2008) and the British NICE guidelines (2009). Above all, reserve with psychopharmacological medication is advocated and psychological treatment is recommended in the first place.

Family interactions and parental stress in adolescents with BPD symptoms

As posed before, a combination of multiple factors, including a strong genetic predisposition and environmental factors, is considered to play a role in the developmental pathways to BPD (Chanen and Kaess, 2012; Distel et al., 2011; Kendell et al., 2008).

Parental rearing factors have since long been associated with psychopathology in adulthood (Bowlby, 1977). Adult BPD patients often report that they perceive the parental rearing by their primary caregivers as seriously deficient. Emotionally withdrawn parenting, overprotection, inconsistent treatment, and low parental care have all been associated with BPD (e.g. Johnson et al., 2006; Nickell, Waudby, and Trull, 2002; Zanarini et al., 1997). Most studies on environmental factors have been conducted in adult patients with BPD, reporting retrospectively on their childhood and adolescence. However, the information obtained in such a procedure, is prone to recall bias (Hufford and Shiffman, 2003).

Another risk factor that is considered to play a part in the development of BPD, is parental psychopathology. Several studies have shown that both Axis I and Axis II problems in parents show an increase of psychopathology in offspring, including BPD (e.g. Bezirganian et al., 1993; Stepp, Whalen, Pilkonis, Hipwell, and Levine, 2011).

Next, another factor that has been associated with psychopathology, is parenting

stress (Pesonen, Räikkönen, Heinonen, and Komsi, 2008; Semke, Garbacz, Kwon, Sheridan, and Woods, 2010). To our knowledge, this factor has not yet been evaluated in relation to BPD.

Chapter 5 describes the results of a study investigating differences in actual parenting behavior and parental psychopathology between adolescents with BPD symptoms, a healthy control group, and their mothers. Differences in parental rearing styles (overprotection, rejection, and emotional warmth) and parental psychopathology (general psychopathology and personality symptoms) between the two groups were explored. All variables were entered in a hierarchical logistical regression model, to examine which are the strongest factors differentiating between adolescents with BPD symptoms and healthy controls.
Chapter 6 examines the relationship between severity of BPD symptoms in adolescents, actual parental rearing, parental psychopathology, and parenting stress in mothers of adolescents with BPD symptoms. It was hypothesized that severity of BPD symptoms in adolescents with the positively influenced by emotional warmth and supportive parenting, and low levels of psychopathology in mothers. Further, we hypothesized that increased levels of parenting stress are associated with increased levels of BPD severity in adolescents.

Topics addressed in this thesis

Considering the seriousness of the problems, the prevalence of borderline symptoms in adolescence, and the adverse consequences in the long term, it is striking that so little research has been done on assessment and treatment of these youngsters. The current thesis aims to contribute to the development of assessment instruments and treatment protocols for adolescents with borderline symptoms, and to contribute modestly to the disentanglement of the developmental pathways of this serious and severe disorder.
Chapter 2 comprehends a study on the psychometric properties of the BPDSI-IV-ado/p, including clinical norms, specificity and sensitivity.
Chapter 3 and 4 describe the results of two randomized controlled trials on the effectiveness of the ERT: chapter 3 describes a pilot study, and chapter 4 a larger study, including predictors of outcome.
Chapter 5 and 6 focus on parental factors that are associated with borderline personality symptoms in adolescence.
Chapter 7 gives a summary of the preceding chapters, and a critical discussion of the findings. Finally, the chapter provides possible ideas for future research in the field of treatment of BPD symptoms in adolescents.

Chapter 2 Psychometric evaluation of the Borderline Personality Disorder Severity Index IV – adolescent version and parent version

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Abstract

The Borderline Personality Disorder Severity Index – IV – adolescent and parent versions (BPDSI-IV-ado/p) are DSM-IV based semi-structured interviews for the assessment of the severity of symptoms of borderline personality disorder (BPD) in adolescents. The present study evaluates the psychometric properties of the BPDSI-IV-ado/p. The interviews were administered to 122 adolescents, aged 14–19 years and their parents/caretakers who were referred to mental health centres for emotion regulation problems, and to 45 healthy controls. The interrater reliability and internal consistency of all nine subscales (following the nine BPD symptoms in DSM-IV) proved to be good to excellent. Discriminant, concurrent, and construct validity were satisfactory. Cut-off scores that optimize sensitivity and specificity were derived. Informant agreement between adolescents and parents/caretakers was modest. The results of this study suggest that the BPDSI-IV adolescent and parent versions are valid and reliable instruments for the assessment of BPD symptom severity in adolescents.

Introduction

Assessment and treatment of Borderline Personality Disorder (BPD) in adolescence have long been neglected, and many health professionals are hesitant in diagnosing BPD prior to age 18 (Crick, Murray-Close, and Woods, 2005). However, there is a growing body of evidence for a reliable and valid diagnosis of BPD in adolescence (Chanen et al., 2008b; Johnson et al., 1999; Stepp, Pilkonis, Hipwell, Loeber, and Stouthamer-Loeber, 2010; Westen, Shedler, Durrett, Glass, and Martens, 2003). There is a need for a diagnostic instrument that assesses BPD in adolescents, not only for research, but for clinical practice as well. Such instrument should take into account developmental aspects of adolescents, including a focus on dimensionality of all BPD symptoms rather than just the dichotomy of the presence of a disorder, and on short-term changes rather than on long-term functioning.

There are several diagnostic instruments available for the assessment of personality disorders in adults, mainly based on semi-structured interviews (e.g. First, Spitzer, Gibbon, Williams, and Benjamin, 1997; Pfohl, Blum, and Zimmerman, 1997; Zanarini, Gunderson, and Frankenburg, 1989). Some of these have been adapted for use in adolescents, but most of these are not specific for BPD (De Clercq, De Fruyt, van Leeuwen, and Mervielde, 2006; Tromp and Koot, 2008; Westen et al., 2003). An important aspect of adult measures for (B)PD is the emphasis on chronic dysfunction and long-term interference. In adolescents, it seems important to address severity of symptoms and short-term fluctuations as well.

There is a clear need of age-specific interviews for the assessment of BPD symptoms in adolescents. Early detection of symptoms and good diagnosis gives the opportunity to detect short-term changes, and to apply early, age-specific interventions. Early interventions could lessen the suffering (of both patients and their environment), and may prevent the development of full-blown BPD in adulthood and the lower (social) functioning that is related to BPD symptoms in adolescence (Chanen, Jovev, and Jackson, 2007; Miller, Muehlenkamp, and Jacobson, 2008). The Borderline Personality Disorder Severity Index - IV is a semi-structured interview that has been developed for adults to measure current severity of BPD symptoms and to detect short-term changes (BPDSI-IV; Giesen-Bloo, Wachters, Schouten, and Arntz, 2010) and has been acknowledged for such use (Zanarini et al., 2010). The instrument provides detailed scores per BPD symptom (DSM-IV; APA, 2000) and is designed to measure current severity of BPD symptoms over the last three months.

In a previous trial, we used the BPDSI-IV for the evaluation of the effectiveness of an Emotion Regulation Group Training for adolescents with BPD symptoms (N=43; Schuppert et al., 2009). We concluded that this adult instrument needed adaptations for use in an adolescent sample. Therefore, the BPDSI-IV-adolescent (BPDSI-IV-ado) version was developed (Schuppert, Nauta, and Giesen-Bloo, 2007). For the BPDSI-IV-ado the structure of the BPDSI-IV was kept, but the language was adapted to youngsters. Each BPD symptom was introduced by age-specific examples. In addition, two major changes were made. First, the subscale 'relationships' was revised. The adult version of this subscale contains two parts: 'partner relationship' and 'other relationships'. Many adolescents are single or have relatively short partner relationships. In the adolescent version 'partner relationship' was therefore changed into 'relationship with most important other', which can be a partner or a best friend (same age-group). Second, two items were added. During the assessment in our previous trial (Schuppert et al., 2009) many adolescents considered they were 'impulsive', but gave low scores on the specific BPDSI-IV impulsivity items. They frequently mentioned impulsivity in speech as one of their core problems. Therefore, the following item was added: 'blurting out anything that comes to mind, leading to trouble e.g. with teachers or in shops'. Though there is little evidence that switches into euphoric mood are common in BPD (Nica and Links, 2009), switches to euphoria were frequently mentioned in our pilot study. The subscale 'affect regulation' was therefore extended with an item on euphoria. That brings the BPDSI-IV adolescent version to 72 items, spread over nine BPD criteria.

In addition to the BPDSI-IV-ado, we also developed a parent version (BPDSI-IV-p; Schuppert, Nauta, and Giesen-Bloo, 2007). It is widely acknowledged that different informants are needed in order to obtain a complete and reliable view on psychopathology and severity of the symptoms in youth (e.g. Achenbach, McConaughy, and Howell, 1987; Ferdinand, van der Ende and Verhulst, 2004). The BPDSI-IV-p follows the same structure, but differs in the fact that three 'introspective' BPD criteria were excluded, given that identity disturbance, emptiness, and dissociation would be too difficult for carers to interpret. The BPDSI-IV-p consists of 52 items, spread over the remaining six BPD criteria.

The present study evaluated the psychometric properties of the BPDSI-IV-ado and the BPDSI-IV-p in a new clinical sample and a non-patient control group. We hypothesized the clinical group to show higher scores on the BPDSI-IV-ado and BPDSI-IV-p than the control group. In addition, clinical norms, sensitivity, and specificity were derived to identify adolescents at risk for borderline pathology. Finally, concurrent and discriminant validity were determined. We hypothesized

that the BPDSI-IV-ado/p would correlate strongly with other BPD instruments, but less with measures for other or general psychopathology.

Method

Participants

The clinical sample consisted of 122 adolescents (95.2% female; mean age 15.9; SD=1.2; range 14 to 18 years) who were recruited from five mental health institutes in the North of the Netherlands, and their parents/caretakers. The youngsters were referred to the Emotion Regulation group Training (ERT) for adolescents with borderline symptomatology. The clinical sample had to fulfil at least two BPD criteria, as assessed with the semi-structured clinical interview SCID-II (First et al., 1996; Weertman, Arntz, and Kerkhofs, 2000). Exclusion criteria were psychotic disorders, conduct disorder, and substance dependence, as assessed by the corresponding parts of the K-SADS-PL (Kaufman et al., 1997). Further, mental retardation (total IQ lower than 80, according to school results) was also an exclusion criterion. Participants and their parents/caretakers received a gift voucher of five euros each after the assessment.

The non-patient sample (N=45; 84.4% female; mean age 15.5; SD=1.2; range 14 to 18 years) was recruited through posters, mouth-to-mouth and letters in secondary schools. Non-patients received gift vouchers of 15 euros and their parents/caretakers of 10 euros respectively. Non-patient controls had never been referred for psychological complaints.

There were no significant differences between groups considering age, educational level, contacts with justice, and ethnicity. There were significant differences between groups in gender (95.9% women in the clinical group versus 84.4% in the control group; $p=.03$) and in divorce of the parents (49.2% in the clinical versus 20% in the control group; $p<.000$).

Assessments

Official Dutch translations of all instruments were used. If not available in Dutch, a formal back-translation procedure by a bilingual, native English translator was preceded. All measures were administered both to the clinical and the control group. The *Borderline Personality Disorder Severity Index – IV adolescent version* (BPDSI-IV-ado) consists of 72 items, spread over the nine BPD criteria of DSM-IV (APA, 2000). Each item is rated on an 11-point Likert scale, running from 0 (never) to

10 (daily), in the past three months. Identity disturbance (ID), however, is rated on a 5-point Likert scale, asking for intensity rather than frequency (0=absent to 4=dominant, clear and well-defined not knowing who he/she is), and is then multiplied by 2.5. Items of each subscale are summed to derive a summary score for each subscale. The total score of the BPDSI-IV-ado is the sum of all subscales and ranges from 0-90. The parent version (BPDSI-IV-p) consists of 52 items, representing six of the nine BPD criteria. Items are scored in the same way as in the adolescent version, the total score of the BPDSI-IV-p ranging from 0-60. It takes approximately 1.5 hour to administer the adolescent version and 1 hour for the parent version.

The *Life Problems Inventory* (LPI) (Rathus, Wagner, and Miller, 2005; Schuppert and Nauta, 2007) was added to assess self-reported severity of borderline symptoms. The LPI assesses four core problem areas of BPD (confusion about self, impulsivity, emotional dysregulation, and interpersonal chaos) as theorised by Linehan (1993a), to underlie borderline pathology. It consists of 60 items, spread over the four subscales. All items are scored on a 5-point Likert scale from not at all' to 'extremely'. Psychometric properties of the LPI were found to be good (Rathus et al., 2005). A *parent version* (LPI-p) was developed and consists of the same items as the adolescent version. All subscales showed excellent internal consistency in the current study (Cronbach's α's ranging from 0.83 – 0.97 for adolescents and 0.86 – 0.98 for parents).

The *Structured Clinical Interview for DSM-IV Personality Disorders – borderline personality disorder section* (SCID-II BPD section; Weertman, Arntz, and Kerkhofs, 2000) was administered to the adolescents, to assess borderline symptoms lifetime. The BPD section consists of nine items, following the DSM-IV criteria. Six items were also administered to the parents, excluding the 'introspective' criteria of the BPD section.

The *Symptoms Checklist-90-R* (SCL-90-R; Derogatis, Lipman, and Covi, 1973) assesses general psychopathological complaints and was completed by the adolescents. The questionnaire contains 90 items, rated on a 5-point Likert scale from 'not at all' to 'extremely', considering the past week. Several studies showed good validity and reliability of the SCL-90-R (e.g. Arrindell, Barelds, Janssen, Buwalda, and van der Ende, 2006; Olsen, Mortensen, and Bech, 2004). In the current study, Cronbach's α was 0.98 for the total scale.

The *Strength and Difficulties Questionnaire* (SDQ; Goodman, 2001) contains 25 items, spread over five scales: behaviour problems, hyperactivity, emotional problems, peer problems and pro-social skills. Scores are rated on a 3-point Likert scale, ranging from 0 (not true) to 2 (certainly true). The five-factor structure

has been confirmed in several studies, and the psychometric properties proved to be satisfactory (Goodman, 2001; Muris, Meesters, and van den Berg, 2003). In the current study, both adolescents and parents completed the SDQ. Cronbach's α's for the adolescents were low on behaviour problems and peer problems: both 0.47, as in the study of Muris et al. (2003); these subscales were therefore removed from further analysis. Cronbach's α's were good for the other subscales and total score (ranging from 0.70 – 0.82 for the adolescents and from 0.72 – 0.84 for the parents).

The *SNAP-IV Rating Scale* originates from the Swanson, Nolan and Pelham Questionnaire (Swanson, Sandman, Deutsch, and Baren, 1983), addressing the ADHD and ODD symptoms as described in DSM-IV (APA, 2000). It contains 26 items, spread over three subscales (inattention, hyperactivity/impulsivity, and oppositional defiant disorder). The SNAP-IV has shown good psychometric properties (Bussing et al., 2008). The parent version was used in the current study and the subscales showed excellent internal consistency (Cronbach's α's 0.91 – 0.95).

The LPI, SCL-90, SDQ, and SNAP-IV were included to assess concurrent and construct validity.

Raters

All interviews were conducted by two psychologists and two undergraduate psychology students, and were completed by one interviewer per participant. Interviewers received a half-day training practicing on each other. Next, they observed two or three interviews conducted by an experienced psychologist, and they had regular consensus meetings during the assessment periods. Second ratings on a random sample of taped interviews (both groups; 15%) were made by an independent trained undergraduate psychology student and a trained psychologist, who were both blind to group status.

Data analysis

All data were analysed using SPSS-15, and were interpreted with 5% significance levels. Intraclass Correlation Coefficient (ICC) was used for the assessment of interrater reliability and informant agreement. Internal consistency was assessed with Cronbach's α. Mann Whitney tests were conducted with planned comparisons for discriminant validity. Square root transformations were performed to obtain a normal distribution. Next, analyses of covariance (ANCOVA's) with general psychopathology, ADHD and ODD as covariates were conducted. Construct and concurrent validity were computed with Spearman's correlations. ROC analyses were used to derive clinical norms, sensitivity, and specificity.

Results

Interrater reliability

The Intraclass Correlation Coefficients (ICC's) of the BPDSI-IV-ado total score and subscale scores were excellent, ranging from 0.98 – 1.00, with the exception of the subscale 'identity disturbance', which had a high ICC of 0.89. The ICC's of the BPDSI-IV-p total score and subscale score were all excellent, in the range of 0.98 – 1.00.

Internal consistency[1]

The internal consistency was excellent for the total scale in the adolescent version (Cronbach's α = 0.94 for both samples) and high for the parent version (α = 0.90 for both samples). The internal consistencies of the subscales in both samples (N= 167) were moderate to high, ranging from 0.62 – 0.86 (mean 0.79) for the adolescent version and ranging from 0.61 to 0.86 (mean 0.72) for the parent version. Cronbach's α's were marginally acceptable in the subscale 'instable relationships' of the adolescent version (α = 0.62) and of the parent version (α = 0.61). This subscale is divided into 'relationship with partner or most important other' and 'other relationships'. The internal consistency was lower for 'other relationships'. Removal of these items did not improve the internal consistency.

Discriminant validity

The clinical sample showed significantly higher scores on all subscales of both the parent and the adolescent interview (table 1). Differences on the total score of the BPDSI-IV-ado remained significant after controlling for general psychopathology (SCL-90; $F(1,158) = 48.99$, $p < .0001$), ADHD and ODD (SNAP-ADHD and SNAP-ODD; $F(1,148) = 75.20$, $p < .001$). The covariate general psychopathology was significantly related to the BPDSI-IV-ado total score ($F(1,158) = 106.03$, $p < .001$). The covariates ADHD and ODD were not significantly correlated to the total score (SNAP-ADHD $F(1,148) = .07$, $p = .79$; SNAP-ODD $F(1,148) = 1.58$, $p = .21$). On an item level, the adolescent version and the parent version each contained twelve items that did not discriminate between the two groups due to very low scores in both groups. In the BPDSI-IV-ado most of these items were situated in the subscales relationships (2 items concerning involvement in new relationships), impulsivity (6 items on unsafe sexual behaviour and drug

[1] Tables of the internal consistency are available on request

Table 1: Discriminant validity of the BPDSI-IV-ado and BPDSI-IV-p (mean scores and (SD))

	BPDSI-IV-ado				BPDSI-IV-p			
	Controls (N=45)	Clinical (N=122)	U	p	Controls (N=44)	Clinical (N=117)	U	p
Abandonment	0.28 (0.54)	1.59 (1.75)	24.17	<.001	0.05 (0.24)	1.16 (1.37)	28.51	<.001
Relationships	0.49 (0.46)	1.97 (1.29)	56.65	<.001	0.32 (0.43)	1.50 (1.11)	46.35	<.001
Identity dist.	0.27 (0.38)	1.68 (1.60)	34.31	<.001	-	-		
Impulsivity	0.43 (0.55)	1.49 (1.29)	28.36	<.001	0.09 (0.22)	0.97 (0.89)	41.87	<.001
(Para)suicide	0.01 (0.02)	0.88 (1.23)	22.56	<.001	0.00 (0.00)	0.33 (0.55)	15.77	<.001
Aff. Instability	1.46 (1.41)	5.19 (2.58)	84.38	<.001	0.94 (1.09)	3.51 (2.05)	62.65	<.001
Emptiness	0.21 (0.64)	2.38 (2.67)	28.97	<.001	-	-		
Anger-control	0.37 (0.56)	3.19 (2.08)	80.43	<.001	0.50 (1.11)	2.66 (2.11)	41.34	<.001
Dissociation	0.02 (0.07)	0.70 (1.23)	13.72	<.001	-	-		
Total	3.53 (2.85)	19.07 (10.39)	97.59	<.001	1.89 (2.23)	10.11 (5.56)	90.26	<.001

use), and dissociation (2 items). In the BPDSI-IV-p the non-discriminating items were situated in the subscales impulsivity (4 items: unsafe sexual behaviour and drug use) and (para)suicidality (6 items).

The clinical sample also showed significantly higher scores on all SCID-II BPD criteria. In the control group, 57.8% reported less than two BPD criteria, versus 0% in the clinical sample. Moreover, 73% of the adolescents in the clinical group reported five or more SCID-II BPD symptoms, versus 8.8% in the control group.

Concurrent and construct validity[2]

The intercorrelations within both the adolescent and the parent version of the BPDSI-IV were moderate to strong. Spearman's ρ was in the range of 0.28 – 0.64 for the BPDSI-IV-ado (mean 0.49). Correlations were highest between

[2] Tables of the intercorrelations of the BPDSI-IV-ado and –p are available on request

affective instability and relationships, and affective instability and emptiness (both 0.64). Spearman's ρ ranged from 0.34 – 0.59 for the BPDSI-IV-p (mean 0.46), correlations being the highest between impulsivity and affective instability (0.59), and impulsivity and anger-control (0.58).

Table 2 and 3 detail the Spearman's correlations of the BPDSI-IV-ado and –p total scores with other instruments. As can be seen, correlations between the two versions of the BPDSI-IV and other instruments were moderate to high, and were all highly significant.

Table 2: Intercorrelations (Spearman's ρ) for the BPDSI-IV-ado, with other measures

	Totalgroup
SCID-II BPD criteria (9)	0.86***
SCL-90-R	0.81***
LPI-ado total score	0.85***
SDQ total score	0.73***
SDQ – hyperactivity	0.51***
SDQ – emotional problems	0.68***

***p < .001

Note: SCID-II BPD = Structured Clinical Interview for DSM-IV Personality Disorders – borderline personality disorder; SCL-90-R = Symptoms Checklist – 90; LPI-ado = Life Problems Inventory adolescent version; SDQ = Strength and Difficulties Questionnaire

Table 3: Intercorrelations (Spearman's ρ) for the BPDSI-IV-p, with other measures

	Total group
SCID-II BPD criteria (6)	0.82***
LPI-p total score	0.63***
SDQ total score	0.72***
SDQ – hyperactivity	0.59***
SDQ – behaviour problems	0.69***
SDQ – emotional problems	0.63***
SDQ – peer problems	0.39***
SNAP – ADHD	0.67***
SNAP – ODD	0.78***

***p < .001

Note: SCID-II BPD = Structured Clinical Interview for DSM-IV Personality Disorders – borderline personality disorder section; LPI-p = Life Problems Inventory parent version; SDQ = Strength and Difficulties Questionnaire; SNAP-ADHD = Swanson, Nolan and Pelham Questionnaire Attention Deficit and Hyperactivity criteria; SNAP-ODD = Swanson, Nolan and Pelham Questionnaire Oppositional Defiant Disorder criteria

Cut-off score

A ROC analysis was calculated against meeting two BPD criteria according to SCID-II, to explore the cut-off score. A score of 6 on the BPDSI-IV-ado gives high sensitivity (0.92) and sufficient specificity (0.82). On the parent version, a cut-off score of 4 gives high sensitivity (0.89) and specificity (0.92). Further, we explored a cut-off score for adolescents with five or more symptoms according to SCID-II. A score of 10 on the adolescent version gives high sensitivity (0.92) and excellent specificity (1); a score of 4 on the parent version gives good sensitivity (0.86) and specificity (0.91).

Informant agreement

Considering informant agreement, the ICC between adolescents and parents on the BPDSI-IV total score was .67 for the total group and .35 for the clinical group; agreement on the subscales of the BPDSI-IV ranged from .53-.71 for the total group (all $p < .000$). Parents reported fewer symptoms than adolescents on all subscales.

Discussion

The aim of the present study was to evaluate the psychometric properties of the BPDSI-IV-adolescent and –parent versions. To our knowledge, this is the first study to evaluate a semi-structured interview measuring severity of borderline personality symptoms in adolescence and the first study using parents as informants in this group.

The BPDSI-IV-ado and BPDSI-IV-p were found to be reliable and valid instruments for the assessment of borderline severity in our sample of adolescents with borderline symptoms and healthy controls. Both versions showed high inter-rater reliability, moderate to high internal consistencies, and good discriminant, concurrent and construct validity. These results were generally comparable to the results of the BPDSI-IV for adults (Giesen-Bloo et al., 2010). Cut-off scores, sensitivity and specificity norms were derived. The instruments can now be used in clinical practice to measure severity of borderline symptoms in adolescence.

The internal consistencies on the subscale 'relationships' of the BPDSI-IV-ado and BPDSI-IV-p were marginally acceptable ($\alpha=0.62$ and $\alpha=0.61$). Removal of poorly relating items did not lead to improvement of the internal consistency. The internal consistency on the subscale 'impulsivity' of the BPDSI-IV-p was moderate

(α=0.66). Adolescents reported higher scores than their parents, in both groups. An explanation could be that parents are not informed of all impulsive acts of their children (e.g. use of alcohol, unsafe sex, binge eating). Giesen-Bloo et al. (2010) also found low internal consistency on this criterion in adults. They suggested that the items on this subscale had a rather diverse nature and some of the items had low base rate scores, which could also be an explanation for the low consistency in our study.

The mean scores in our clinical sample were lower than in adult samples (Giesen-Bloo et al., 2010; Rinne, van den Brink, Wouters, and van Dyck, 2002). An obvious explanation is that in these studies, inclusion criteria were a full diagnosis of BPD, while in our study, inclusion criteria were set much lower (at least two BPD criteria). Personality disorders are widely seen as dimensional constructs, and the diagnosis of BPD is less stable than previously thought (Clark, 2007). Both subsyndromal and full-blown BPD patients are seen in adolescence. Considering the poor outcome, it could therefore be worthwhile to diagnose milder cases, in order to enable early interventions and to prevent the functional and psychopathological poor outcomes on the long-term (Chanen et al., 2008c; Zanarini, Frankenburg, Hennen, Reich, and Silk, 2006). In our study, 73% of the clinical group had at least 5 DSM-IV BPD symptoms, as measured by SCID-II, versus 9% of the control group. However, BPDSI-IV-ado total scores differed markedly between the clinical sample with full syndrome BPD and the control group with full syndrome BPD: 22.56 versus 8.43. This indicates that a diagnosis postulated by SCID-II, is not per se an indication of the severity of the condition. BPDSI-IV-ado may be a more accurate measure for this purpose.

Another explanation for the lower scores in adolescents could be that borderline symptoms are not yet as severe as in adult patients. Compared to the BPDSI-IV study in adults (Giesen-Bloo et al., 2010), lower scores in adolescents were especially seen in 'abandonment', 'identity disturbance', 'emptiness' and 'dissociation'. Fear for abandonment might be lower in adolescents due to the fact that most of them live in a family. Most adolescents 'know' that they will not be left alone, even in case of a lot of family trouble. Feelings of emptiness and identity disturbance might be difficult for adolescents to verbalise. Moreover, identity disturbance can be seen as normal in adolescents (Klimstra, Hale III, Raaijmakers, Branje, and Meeuw, 2010), and could have been interpreted by the interviewers this way, giving lower scores than they would have done in an adult sample. Dissociation and paranoid ideation could be symptoms that occur later in the course of the disorder.

All scores on the nine BPD criteria were highly and significantly different between

the clinical sample and the control group, even when controlling for general psychopathology, ADHD and ODD. We found high correlations between the BPDSI-IV versions and other instruments. High correlation with the BPD specific instruments (SCID-II and LPI) was as expected, since these instruments are based on the same construct. The correlation between the BPDSI-IV-ado and the SCL-90 was high (0.81), which is in line with the findings of Zanarini (2003b), who found a high correlation between the Zanarini Rating Scale for BPD and the total score of the SCL-90. High correlations were also found between the BPDSI-IV-p and the SDQ total score (0.72). An explanation could be that both the SCL-90 and the SDQ measure general (mental) health problems, and are not very specific for BPD. The high correlation between the BPDSI-IV-p and the SNAP subscales (0.67 and 0.78 respectively) could be due to considerable overlap between the instruments, since the BPDSI-IV-p focuses on behaviour symptoms of BPD. Although the correlations between the BPDSI-IV-ado and BPDSI-IV-p, and other instruments were highly significant, they were somewhat lower. This probably reflects the fact that the subscales of these instruments show some overlap, but they do not cover exactly the same symptom areas.

Cut-off scores were derived for both versions of the BPDSI-IV, which may help the clinician to decide whether to start BPD-specific treatment or not.

As expected, we found moderate agreement (.35) for the clinical sample on the total score of the BPDSI-IV versions, which is in line with a review of Klonsky, Oltmans and Turkheimer (2002). Tromp and Koot (2010) using parent reports of the DAPP-BQ-A, also found moderate agreement (.45) between adolescents and parents. One could argue that adolescent reports alone are sufficient to assess borderline severity in adolescence. On the other hand, disagreement between adolescent and parents could also be seen as an opportunity to use specific information from different sources that is valid in itself (Ferdinand et al., 2004).

The current study has some limitations. Due to time constraints, we did not screen for all axis I disorders in the clinical group, and we did not screen for psychopathology in the control group. More research is needed to discriminate between youth with borderline symptoms and youth with other psychopathology. Further, our sample of normal controls was rather small, and the whole sample was mainly represented by females. The instruments will need some adaptations when DSM-V criteria are introduced, but the structure can principally be maintained. Future research should address the issue of sensitivity to treatment outcome of the BPDSI-IV-ado and BPDSI-IV-p. English versions of the instruments are currently in progress. However, the results of our study indicate that the BPDSI-IV-ado and the BPDSI-IV-p are useful instruments for the assessment of severity of borderline symptoms in adolescents.

Chapter 3 Effectiveness of an Emotion Regulation Group Training for adolescents - a randomized controlled pilot study

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Abstract

Emotion Regulation Training (ERT) was developed for adolescents with symptoms of borderline personality disorder and emotion dysregulation. ERT is an adaptation of the Systems Training for Emotional Predictability and Problem Solving (STEPPS) program. This paper describes the background of the program, and gives an outline of the treatment program. The effectiveness of ERT was examined in a randomized controlled pilot study with 43 youth (aged 14-19 years) in five mental health centres in The Netherlands. Subjects were assessed before and after random assignment to ERT plus treatment as usual (TAU) (n=23) or to TAU alone (n=20). Outcome measures included assessment of BPD symptoms, locus of control, and internalizing and externalizing behaviour. Both groups showed equal reductions in BPD symptoms over time. The group receiving ERT plus TAU (and not the TAU only-group) had a significant increase in internal locus of control: ERT participants reported more sense of control over their own mood swings, and attributed changes in mood swings not only to external factors. The study was complicated by a high attrition. The implications of the findings are discussed, including the difficulties inherent in treating and researching an adolescent population, and the need for researchers to develop age-appropriate assessments.

Introduction

Borderline personality disorder (BPD) is estimated to have a prevalence in the community of 0.7 to 5.9% in adults (Coid, Yang, Tyrer, Roberts and Ullrichs, 2006; Grant et al., 2008; Lenzenweger, Lane, Loranger and Kessler, 2007). The disorder is associated with impaired functioning in important life domains, and has a significant adverse impact on quality of life. The disorder also adversely impacts the family members and friends of patients with BPD. Core symptoms of BPD include instability in multiple areas of functioning, such as mood, interpersonal relationships, and self-image.

Mental health professionals have long viewed personality as lacking cohesiveness and durability prior to the age of 18, which resulted in a lack of attention to borderline pathology before the age of 18 (Crick, Murray-Close and Woods, 2005). However, except for antisocial personality disorder, any of the remaining personality disorders listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, APA, 2000), can be diagnosed regardless of age. Under the age of 18, personality disorder symptoms must be present for at least one year and be severe enough to persistently cause problems in daily life and cannot be explained by developmental stage or an episode of an Axis I disorder. Recently, there has been growing interest in using the BPD diagnosis in adolescents, and there is evidence supporting the reliability and validity of the diagnosis of BPD in this age group (Bondurant, Greenfield and Tse, 2004; Chanen, Jovev and Jackson, 2007; Miller et al., 2008).

There are no reliable figures on the prevalence of BPD in adolescents, although rates may be higher in adolescents than in adults. Two relevant studies have reported prevalence rates of BPD in high school samples. One reported a rate of 6%, and the other 14% (Chabrol, Montovany, Chouicha, Callahan and Mullet, 2001 Chabrol et al., 2004). It should be noted, however, that the prevalence of BPD was measured by a self-report questionnaire, which may have overestimated the frequency of personality disorders (Emmelkamp and Kamphuis, 2007).

Symptoms of BPD lead to significant distress for the adolescent as well as his/her family members (Chanen et al., 2007). There is some evidence that outpatients with BPD have more disabling psychiatric symptoms and functional impairment than adolescents with other psychopathology (Chanen et al., 2007). Also, BPD was found to be a better predictor than Axis I disorders for psychopathology and psychosocial dysfunctioning. In a 20 year prospective study, Winograd, Cohen and Chen (2008) followed 748 adolescents from a community sample (mean age 13.74 years). Borderline symptoms predicted lower social functioning and

life satisfaction, lower academic and occupational attainment, less partner involvement, and a higher consumption of health care services. Also, youth with borderline symptoms fulfilled more BPD criteria and showed more general impairment at 20 years later.

Considering the high prevalence rate of BPD and the serious long term consequences associated with BPD, there is a clear need for early intervention programs for adolescents with BPD or its symptoms. Conceivably, such programs could alleviate the symptoms of BPD and prevent the development of full-blown BPD and the poor psychosocial functioning often seen in adults with the disorder (Chanen et al., 2007; Miller, Muehlenkamp and Jacobson, 2008).

Nonetheless, treatment protocols for adolescents with BPD or its traits are uncommon and have hardly been evaluated. To our knowledge, there are only two interventions thus far studied in borderline youth. Cognitive analytic therapy (CAT; Ryle, 2004) was developed for the treatment of adults with BPD. CAT consists of 16 to 24 weekly individual sessions and uses elements of psychoanalytic object relations theory and cognitive psychology. CAT was compared to manualised good clinical care in a randomised controlled trial with 86 adolescents aged 15-18 years (Chanen et al., 2008c). Both groups showed significant improvement in externalising psychopathology. There was some evidence that the CAT-group improved more rapidly. DBT-A is an adaptation of dialectical behavior therapy (DBT; Linehan 1993a and 1993b). DBT-A (Miller, Rathus, and Linehan, 2007) consists of weekly individual therapy, weekly multifamily skills training group, and phone coaching. DBT-A was evaluated in a quasi-experimental design by Rathus and Miller (2002) in 111 suicidal adolescents. Assignment to DBT-A was based on a triage model: patients who (A) made a suicide attempt within the last 16 weeks and (B) who met at least three symptoms of BPD (based on SCID-II) were assigned to DBT-A. Patients who only met one criterion (A or B) were assigned to TAU. At follow-up, DBT-A resulted in fewer psychiatric hospitalizations and less drop-out than TAU. However, there were no differences in suicide attempts between groups. In a pilot study on DBT-A in a group of 12 adolescents (Fleischhacker, Munz, Böhme, Sixt, and Schulz, 2006), self-injurious behaviour fell significantly. Katz, Cox, Gunasekara, and Miller (2004) modified the DBT program for inpatient suicidal adolescents and evaluated the program in 62 inpatient suicidal adolescents. Compared with treatment as usual, there was a significant reduction of behavioural problems, but no difference between groups in parasuicidal behavior, suicidal ideation or depressive symptoms. Most of the treatments developed for adults with BPD are intensive and require a long-term commitment by the patient (e.g. Emmelkamp and Kamphuis, 2007), including

DBT (Linehan 1993a and 1993b). Yet, DBT-A is even more intensive and time-consuming than is DBT for adults. In addition to individual therapy, skills training, and telephone consultation (all components of DBT for adults), family members join the skills group and family therapy is embedded in the program (Miller et al., 2007). One may wonder if this investment is feasible (or necessary) for all adolescents with borderline pathology, particularly considering that the pattern of dysfunction might be less engrained and the dysfunction less severe than in adults with BPD. Thus, a time-limited intervention that is less intensive could be offered initially in a stepped care model. It might be easier to motivate adolescents and caretakers for such a therapy than for an extensive treatment model. Further, a briefer intervention might better suit the adolescent's developmental stage and might be relatively easy to implement in mental health centres. This is supported by the findings of Chanen et al. (e.g. 2007; 2008c).

Many experts see emotional dysregulation as one of the core symptoms of BPD (Ebner-Priemer et al., 2007; Linehan, 1993a; Putnam & Silk, 2005; Sanislow et al., 2002; Skodol et al., 2002). For this reason, we developed a relatively brief group training for adolescents suffering from two or more BPD criteria (van Gemert, Ringrose, and Wiersema, 2007), the Emotion Regulation Training (ERT). The group training was an adaptation of the Systems Training for Emotional Predictability and Problem Solving (STEPPS), a treatment model developed in the USA by Blum and co-workers, and shown to be effective in adults with BPD (Blum, Pfohl, StJohn, Monahan, and Black, 2002; 2008; Black, Blum, Pfohl, and StJohn, 2004). In addition, elements of the skills training of DBT (Linehan, 1993a and 1993b) and cognitive behavioral therapy were used. Problems with emotion regulation (more specifically mood instability) and the development of a more internal locus of control were chosen as the primary goals of this treatment. Compared to the STEPPS program, the treatment length and the sessions are shortened. Emotion regulation skills are taught in an early stage, to meet the wish for perceptible change in the short term. The language is simplified and the examples are made age-specific. Two sessions on 'knowing yourself' are added, to fit to the developmental stage of self-exploration (Steinberg and Morris, 2001).

ERT involves 17 weekly sessions and two booster sessions at 6 and 12 weeks post-treatment. The training involves three phases. The first phase provides psychoeducation, combined with instruction on behavioral chain analyses and problem solving techniques. The second phase is focused on 'knowing yourself'. Youth are asked to take a close look at their character and temperament in relation to their emotions and behaviours. In the third phase, youth learn to make better lifestyle choices including eating, sleeping, substance use, mental hygiene,

and personal relationships. They learn to implement better coping mechanisms in their daily life. Improving 'locus of control' i.e. getting better handle on emotional dysregulation, is one of the main issues in the training.
This paper presents a description of the ERT, followed by the findings of our pilot study. Subjects were randomly assigned to ERT plus Treatment as Usual (TAU), or TAU alone at five mental health centres in The Netherlands. ERT was facilitated by trained therapists not involved in developing the program. We minimized exclusion criteria in order to include a sample that was representative for clinical practice. TAU was naturalistic and not regulated by the research team. We expected to find that those adolescents receiving ERT would have greater improvement in BPD symptoms (especially mood instability) than those assigned to TAU, and would experience a shift towards a more internal locus of control.

Emotion Regulation Training

The main goal of the training is to introduce alternative ways of coping with affective instability, daily stressors and psychological vulnerability. Reducing self-harm or harm to others is another important issue. The adolescents learn that they can take more responsibility for their behaviour, and to realize they have a choice in how to (re)act when emotionally distressed.
After three sessions, a meeting is held for important system members (e.g., parents, partner, mentor, friends). The meeting involves psychoeducation regarding emotion dysregulation, and provides a brief summary of the therapy program with instructions on how to deal best with their emotionally volatile relative/friend.
ERT groups consist of six to nine adolescents, 14 to 19 years old. The group meets for 17 weekly sessions of 1¾ hours.
The group is facilitated by two therapists, neither of whom provides individual therapy to the adolescents. We required that at least one facilitator has experience in the treatment of emotion dysregulation disorders and in group therapy. The manual of ERT consists of a workbook for the subjects and the facilitators. The program requires little additional training for mental health professionals who represent different disciplines. In our setting we provided a one-day course and monthly supervision during the training. The developers of ERT were also easily contacted by e-mail and telephone.

Description of the ERT program

Each session begins with a discussion about the homework assignments made the previous week. Attention is given to encouraging the use of newly learned skills. Subjects are asked to fill out a mood rating scale daily to achieve a better insight in their mood swings and their triggers. The topic of the current session is then introduced, and after a brief break the session resumes and is illustrated with an example. A relaxation exercise follows. Each session ends with homework assignment for the next week.

The first phase of training involves psycho education about emotional dysregulation and increasing the awareness of patterns of behavior and emotion. Behavioral principles are taught and subjects learn to make a behavioral chain analysis. This begins with the self-monitoring of thoughts and feelings in order to get hold of their emotional storms. The term 'emotional storm' describes the feeling of being swept away in an avalanche of emotions.

The second phase is characterised by 'knowing yourself'. Adolescents are invited to explore their temperament and character, to have a closer look at past experiences, present circumstances and personal plans for the future. 'Knowing yourself' aims at improving one's locus of control and gaining better insight regarding one's personal strengths and pitfalls.

The third phase involves learning emotion regulation skills (e.g., taking distance and stepping back, or challenging negative and distorted basic assumptions), followed by attention to lifestyle. An important component of this phase is learning how to avoid deliberate self-harm and other forms of self-destructive behaviour. Adolescents learn to make 'behavior modification plans', in which they describe a life style problem, pros and cons of changing, and then developing a plan to attack the problem.

The training ends with a final evaluation meeting and two booster sessions at six and twelve weeks post-treatment. A letter with a brief summary of the training, the progress and points of attention is sent to the adolescent's individual therapist.

Method

Design

The pilot study was set up as a RCT carried out in five mental health centres in the north and east of The Netherlands. Approval for the study was given by the

Medical Ethical Committee of the University Medical Center Groningen (UMC Groningen).

Adolescents age 14 to 19 years were referred for treatment of emotion dysregulation problems or borderline personality symptoms and underwent a standard intake. The facilitators of ERT administered parts of the Borderline Personality Severity Index (BPDSI-IV; Arntz et al., 2003; Giesen-Bloo, Wachters, Schouten and Arntz, 2010) to confirm the presence of either BPD or subclinical BPD. Subjects had to meet the criterion of mood instability in combination with at

Table 1: A session-by-session outline of the Emotion Regulation Training for adolescents

	Session number	Session content
Phase 1: psycho-education and cognitive model	1	Psycho-education regarding emotion dysregulation
	2	Introduction to cognitive model and behavioral chain analysis, and automatic thoughts
	3	Learning to recognize an emotional storm; introduction of skills training
	Systems meeting	Psycho-education for important system members, explanation of ERT principles
Phase 2: knowing yourself	4	Knowing yourself
	5	Using your self-knowledge, informing others about your problems
	6	Breaking out of an emotional storm
	7	Integration and validation of the previous sessions
Phase 3: life-style changes	8	Introduction of life-style and 'behavior modification plans'
	9	Sleeping
	10	Eating
	11	Being alone
	12	School/work/recreation
	13	Personal and mental health hygiene
	14	Money
	15	Interpersonal relationships I
	16	Interpersonal relationships II
Evaluation and booster sessions	17	Evaluation
	Two booster sessions	Review of ERT, review of 'change plans', plans for the future

least one other BPD symptom. The two treatment conditions were ERT combined with Treatment as Usual (ERT + TAU) and TAU alone. Both the content and frequency of the interventions in TAU were tailored to the specific problems of the participants. Components of TAU included medication, individual psychotherapy, system-based therapy, in-patient psychiatric care, and emergency services in case of self-harm or suicidal behaviour.
Baseline assessment was made after inclusion and prior to randomisation. Follow-up assessments took place post-treatment. Subjects received a gift voucher of five Euros after each assessment session to cover out-of-pocket expenses. They also received refunding of travel expenses. Three independent research psychologists completed the ratings. They had no contact with the therapists and were blind with respect to treatment allocation.

Subjects

Forty-six patients entered the study between July 2005 and October 2005; three withdrew after baseline assessment and before randomisation (figure 1). Randomization was performed in blocks of four regions. Two regions provided enough subjects to allow for randomisation within the region. Two other regions did not have enough subjects and a block randomization across these two regions was performed. In October 2005, three groups (n=9, n=8 and n=6) started. "Lost to therapy" was defined as having attended fewer than nine sessions. Sixteen of 23 subjects (70%) attended at least nine sessions of ERT.
Inclusion criteria were: aged between 14 and 19 years and meeting the following (DSM-IV) criteria based on the concurrent sections of the BPDSI-IV:
A. Mood instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days).
B. At least one of the following criteria (1-3):
1. Impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating).
2. Recurrent suicidal behaviour, gestures, or threats, or self-mutilating behaviour.
3. Inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights).
When the adolescent met the inclusion criteria, the adolescent as well as the parent(s) were informed about the training and about the research project. Participating adolescents and their legal representatives signed an informed consent.

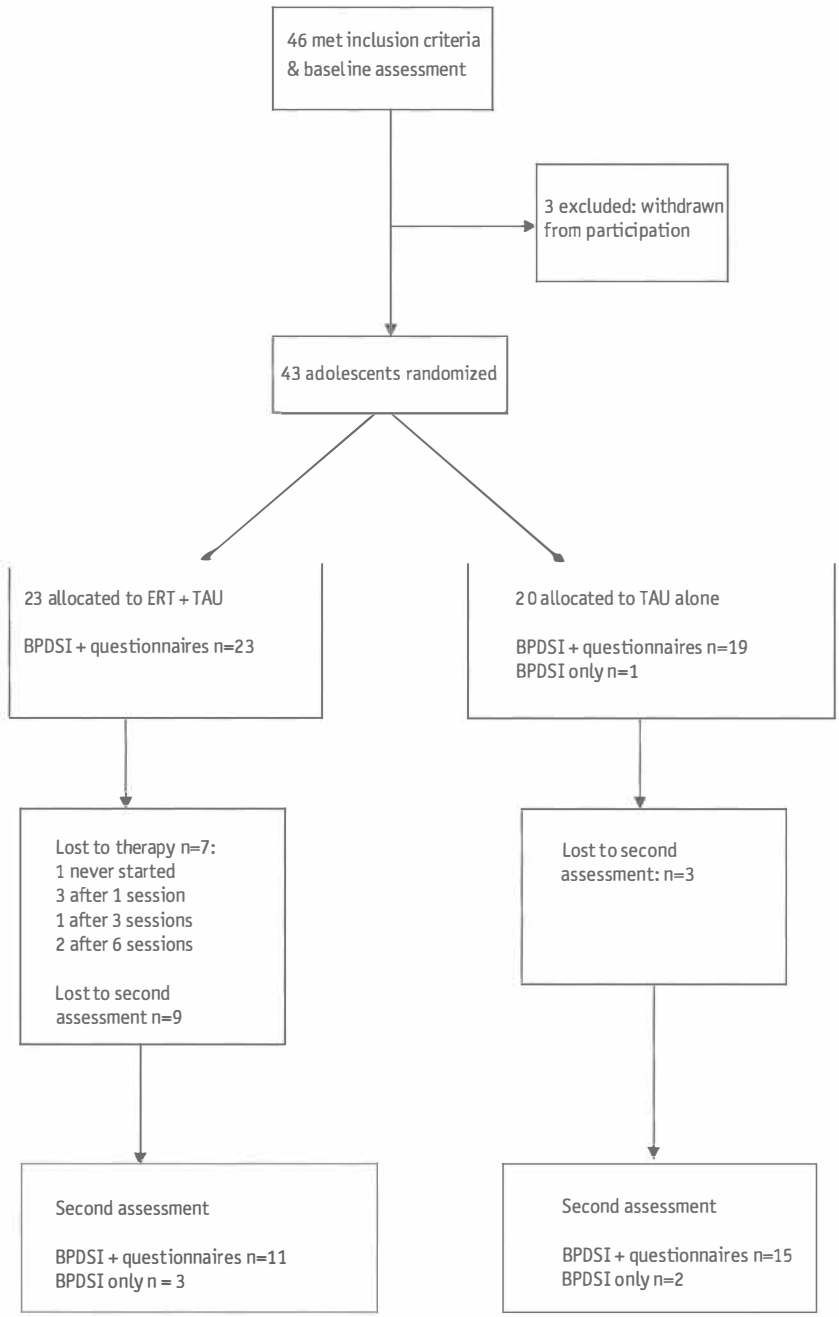

Figure 1: Recruitment and randomization
ERT = Emotion Regulation Training
TAU = Treatment as Usual
BPDSI = Borderline Personality Disorder Severity Index

Table 2: Sociodemographic characteristics of 43 study participants

	Total (n=43)	ERT + TAU (n=23)	TAU (n=20)	P value
Age (years)	16.14 (SD 1.23)	16.23 (SD 1.27)	15.90 (SD 1.17)	.61
Female	38 (88.4%)	22 (95.6%)	16 (80%)	.17
Education				.79
low	17 (39.5%)	8 (34.9%)	9 (45%)	
middle	14 (32.6%)	8 (34.8%)	6 (30%)	
high	12 (27.9%)	7 (30.4%)	5 (25%)	
Use of psychotropic medication (baseline)	14 (32.6%)	7 (30.4%)	7 (35%)	1.00
Parents separated	22 (51.2%)	9 (39.1%)	13 (65%)	.13
Ethnic – Caucasian	41 (95.3%)	23 (100%)	18 (90%)	
Any contact with the law in the last 12 months	10 (23.3%)	8 (34.8%)	2 (10%)	.08
≥ 10 units of alcohol per week	5 (11.6%)	2 (8.7%)	3 (15%)	.65
≥ 1 marijuana cigarette per week	9 (20.9%)	4 (17.4%)	5 (25%)	.71
Regular use of hard drugs	2 (4.6%)	1 (4.3%)	1 (5%)	

The relevant sociodemographic characteristics are presented in table 2. The two groups were well balanced. However, there was a trend that youth included in the ERT+TAU condition had had more contacts with the law in the previous 12 months (35% versus 10%, p=0,08). The two treatment conditions did not differ from each other on any outcome measure at the first assessment.

Assessments

No specific instruments were available to assess emotion regulation problems in the youth. Therefore, most measures were taken from or derived from adult instruments.

We used the Borderline Personality Disorder Severity Index – IV (BPDSI-IV; Arntz et al., 2003; Giesen-Bloo et al., 2010) to assess current severity and frequency of the DSM-IV BPD manifestations. BPDSI-IV contains of 70 items (nine subscales matching the nine BPD criteria in DSM-IV) and refers to the past three months. In adults with BPD, BPDSI-IV has shown very good psychometric properties (Arntz et al, 2003; Giesen-Bloo et al., 2010). A cut-off score was not specified because the instrument was not developed for use in adolescents. The total score on the interview and the subscore on mood instability were used as primary outcome measures.

The Multidimensional Emotion Regulation Locus of Control (MERLC) was developed by our team (Nauta and Plat, 2005) based on the Multidimensional Health Locus of Control (MHLC; Wallston, Wallston and DeVellis, 1978; Wallston, 2005). The measure has 18 items in four subscales: Intern (6 items; e.g. "it is mainly due to myself how long it takes to handle an emotional storm"), Coincidence (6 items; e.g. "whatever I do, I will have emotional storms anyway"), Medication (3 items; e.g. "when an emotional storm fades away, this is mainly due to medication"), Others (3 items; e.g. "when I have an emotional storm, I can only do what others tell me to do"). The report of the subscale "Intern" was included as a primary outcome measure in this study. Cronbach's alpha for the "Intern" subscale was 0,72.
The Youth Self Report (YSR; Achenbach, 1991) is a commonly used and well-established measure. It consists of 112 items. Scores on both internalising and externalising subscales were included as secondary outcome measures.

Statistical analyses
Repeated measures ANOVAs were conducted to examine both the main time effect as well as the interaction effect for differential treatment effects between the two conditions.
Because a high percentage (n=12; 28%) of adolescents lacked post-treatment data, only completers were included in the analyses.
To gain insight in the strength of the treatment gains, effect sizes (ESs) were calculated by dividing each contrast variable by its standard deviation (Cohen's d; Cohen, 1992).

Results

Effectiveness of TAU alone and ERT+TAU
Repeated measures ANOVAs indicate improvement over time, measured by the total score of the BPDSI-IV ($F(1,29)=6.39$; $p=.02$). The other primary outcome measures demonstrated no significant improvement over time (BPDSI-IV subscale affect regulation ($F(1,29)=2.06$; $p=.16$) and internal locus of control as measured by the MERLC-a ($F(1,24)=.49$; $p=.49$)).
According to the secondary outcome measures a trend over time was found on the internalizing subscale of the YSR ($F(1,23)=4.10$; $p=.06$), but no significant effect on the externalizing subscale of the YSR ($F(1,24)=2.61$; $p=.12$).
Repeated measure ANOVAs on the BPDSI-IV showed that there was no significant

Table 3: Primary and secondary outcome measures in participants and F and P statistic for the differential effect between the treatment conditions (Mean (SD))

	ERT + TAU			TAU only			Time effect		Interaction effect	
	Baseline	Post-treatment	Effect size	Baseline	Post-treatment	Effect size	F value	P value	F value	P value
BPDSI-IV total score	(n=23)	(n=14)		(n=20)	(n=17)					
	18.4 (9.3)	16.3 (8.2)	.23	21.4 (7.2)	19.0 (10.4)	.27	6.39	.02*	.07	.79
BPDSI-IV affective stability	(n=23)	(n=14)		(n=20)	(n=17)					
	4.8 (1.7)	4.4 (2.6)	.16	5.15 (1.7)	4.8 (2.7)	.33	2.06	.16	.24	.63
MERLC subscale internal locus of control	(n=23)	(n=11)		(n=19)	(n=15)					
	20.6 (5.7)	17.2 (2.8)	.67	18.4 (4.6)	21.4 (7.2)	-.49	0.49	.49	.16	.006**
YSR subscale internalizing	(n=22)	(n=11)		(n=19)	(n=14)					
	24.8 (10.2)	22.8 (11.5)	.18	25.1 (8.8)	24.6 (12.4)	.04	4.10	.06	.32	.58
YSR subscale externalizing	(n=23)	(n=11)		(n=19)	(n=15)					
	19.0 (7.4)	16.2 (9.7)	.33	19.2 (9.7)	17.6 (10.9)	.15	2.61	.12	.06	.82

* $p < .05$
** $p < .01$
BPDSI-IV=Borderline Personality Disorder Severity Index -IV; MERLC=Multidimensional Emotion Regulation Locus of Control; YSR=Youth Self Report; ERT=Emotion Regulation Training; TAU=Treatment as Usual

level of change between groups for both the total and the subscale affective stability of the BPDSI-IV (BPDSI-IV total score F(1,29)=.07; p=.79; BPDSI-IV subscale affect regulation F(1,29)=.24; p=.63).
With regard to our other primary outcome measure, we found a significant interaction effect on the adolescents MERLC-subscale internal locus of control (F(1,24)=9.16; p=.006). Adolescents in the ERT group reported an improvement in their feeling of having control over their emotions, whereas the adolescents in the TAU alone group reported a decrease of internal locus of control.
The secondary outcome measures for the adolescents showed no significant effect between groups, measured by the YSR, internalizing and externalizing subscales (YSRintern F(1,23)=.32; p=.58; YSRextern F(1,24)=.06; p=.82).

Attrition
Non-completers and completers were compared in terms of differences at the first assessment (by means of ANOVAs). No differences were found between the two groups on the three primary outcome measures, namely experienced internal locus of control (F(1,40)=.31; p=.58), borderline severity (BPDSI-IVtot: F(1,41)=1.17; p=.29), or affect regulation as measured by the BPDSI-IV (BPDSI-IVaffect: F(1,41)=2.96; p=.09). With regard to the secondary outcome measures, lower scores for internalizing behaviour was associated with a significantly higher rate of drop-out (YSRintern: F(1,40)=5.24; p=.03). In addition, many of our non-completers were located in one particular training group. There were no differences found on externalizing behaviour between non-completers and completers (YSRextern: F(1,40)=.41; p=.53)

Discussion

We report the results of a pilot study in which we tested ERT, an adaptation of the STEPPS model for BPD, in a group of emotionally dysregulated adolescents. The goal was to explore the value of adjunctive ERT when added to TAU. Contrary to our expectations, we found no differential effect with regard to our primary measures of mood regulation and borderline symptomatology. Adolescents in both treatment conditions had less severe borderline symptoms after six months, regardless of whether they received ERT.
One explanation for this finding is that the adolescents had relatively low scores on the BPDSI-IV, leaving little room for improvement. Their mean score was 19,8

(SD 8,4; Range 7.0 - 44,2) while in treatment outcome studies for adult BPD patients, a cut-off score of 20 is often set as an inclusion criterion. This low score may have been caused by the timing of our assessment: the first assessment took place right after the summer holidays. Our main outcome measure, the BPDSI-IV, specifically addresses the past three months. Many adolescents had had a long summer holiday in which they may have experienced fewer difficulties than during comparable school periods. Kovalenko et al. (2000) found the lowest symptom count for most internalizing disorders in children occurred in September. The results for externalizing symptoms were less consistent. However, we found no research on seasonal variations in the assessment of symptoms of personality disorders in adolescents.

Because there are few instruments available to assess adolescents with emotion regulation problems, we used the BPDSI-IV, an instrument developed for adults with BPD. Clearly, some of the items were too difficult or did not fit the daily experience of adolescents. This could explain the low scores on the BPDSI-IV. Also, to our knowledge there are no instruments available for parents or caregivers that assess their view on the problems of the adolescents. Therefore, we adapted the BPDSI-IV to an adolescent version and a parent/caretaker version (Giesen-Bloo et al., 2010; Schuppert, Nauta and Giesen-Bloo, 2007).

Both groups showed improvement over time in their borderline symptoms. Given the lack of differences on the BPDSI-IV, TAU alone might be more powerful than previously thought. Psychiatric treatment for children and adolescents is easily available in The Netherlands, usually combines family and individual therapy, and is covered by all insurance plans. However, the ES of the BPDSI-IV total score was low: for the experimental group 0.23 and for the TAU alone group 0.27. This means that there is still considerable room for improvement in both conditions. Fleischhaker et al. (2006) conducted a pilot study on DBT-A and found effect sizes of 1.1 to 2.9. However, sample size was only 12.

In line with our expectations, the adolescents reported higher levels of internal locus of control after ERT +TAU, and lower levels of internal locus of control after TAU alone. Gaining control over one's emotions and thoughts and taking responsibility for one's behaviour are the main goals of ERT. In a review on locus of control in youth, Page and Scalora (2004) conclude that improvement of internal locus of control can be used as an indicator for positive change after therapy.

In our study, 39% of the adolescents in the experimental condition were lost to second assessment. More subjects in the experimental group were lost to follow-up than in the TAU alone group (15%). This could partly be due to group processes, especially in one location, where a group of 9 adolescents started with ERT of

whom only 3 participants completed the program. According to the facilitators of this group, there was a non-therapeutic atmosphere from the start, which was very hard to influence in spite of all the therapists' efforts. In studies with adults suffering from BPD, up to 37% subjects in the experimental condition are lost to follow-up, and up to 77% in the control condition (Verheul et al., 2003). Chanen et al. (2008c) randomized 86 adolescents to CAT or good clinical care. 8 Adolescents (9%) dropped-out before the start of the therapy program. During therapy, 33 adolescents (38%) dropped-out and 17 (20%) terminated therapy with a formal final session. Attrition was equally spread over the two interventions. The study of DBT-A (Rathus and Miller, 2002) has a quasi-experimental design and comparison on attrition rates is therefore difficult. It reports an attrition of 60% in the TAU group, versus 38% in the DBT-A condition.

The non-completers in our study differed from the completers in pre-treatment internalizing behaviour: completers reported significantly higher levels of internalizing behaviour than the adolescents who did not participate in the second assessment. This suggests that the adolescents who fail to complete treatment are not the ones with more severe borderline pathology, but rather the ones with less internalizing complaints. Children who experience more distress due to mood or anxiety complaints may be more motivated for treatment and thus more likely to finish the training. In addition, children with more insight into their problems (thus reporting more internalising complaints) may benefit more from the treatment program. Similar results were found in a study by Pagnin, de Quieroz and Saggesse (2005) with adolescents with substance abuse problems. Adolescents who reported more anxiety and depressive symptoms, had a better initial adherence, came more regularly and stayed longer in therapy. Another explanation of the high drop-out rates can be found in the nature of the disorder. A pattern of unstable and intense interpersonal relationships is one of the DSM-IV criteria (APA, 2000). It is well known that building a therapeutic relationship is difficult with adult BPD patients (Waldinger and Gunderson, 1984; Yeomans, Clarkin and Kernberg, 2002). Our clinical impression is that adolescents suffering from emotion dysregulation have an inconsistent pattern of attendance at mental health care services.

ERT is a relatively brief and adjunctive program and can be implemented as a first step in a stepped care model for the treatment of BPD symptoms in adolescents.

The results of our pilot study are less powerful than we hoped. This could be due to the program itself, to the quality of TAU in The Netherlands, or to the lack of reliable and valid assessments for adolescents with borderline symptoms. Having made additional modifications in the program based on our work in the pilot study, we are now conducting a larger RCT in adolescents.

Chapter 4 Emotion Regulation Training for adolescents with borderline personality disorder traits: a randomized controlled trial

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This paper has been submitted for publication and is currently under review

Abstract

Objective:
To evaluate the effectiveness of the Emotion Regulation Training (ERT) for adolescents (14-19 years) with borderline personality disorders (BPD) symptoms.

Method:
109 Adolescents with borderline traits (73% meeting full criteria for BPD) were randomized to Treatment As Usual only (TAU) or ERT+TAU. Outcome measures included severity of BPD symptoms, general psychopathology, and quality-of-life. Multilevel analyses were conducted on an intent to treat basis. Clinical significant change was determined by normative comparisons on a primary outcome measure.

Results:
Independent of treatment condition, both groups improved equally on severity of BPD symptoms, general psychopathology, and quality-of-life.19% of the ERT group was remitted according to the cut-off score at post-treatment, versus 12% of the control group. Follow-up assessments in the ERT group showed some further improvement (but only 33% remission). With regard to moderators of treatment outcome, adolescents with higher levels of depression or ADHD/ODD at baseline, and who reported a history of abuse, had worse outcome, regardless of treatment condition. The attrition rate for ERT-sessions was remarkably low, with 81% of youngsters attending more than half of the sessions.

Conclusions:
Early interventions for BPD symptoms in adolescence are feasible and necessary. No additional effect of ERT over TAU could be demonstrated in the current study. There is a clear need for developing effective interventions for adolescents with persistent BPD symptomatology.

Introduction

Borderline Personality Disorder (BPD) is an invalidating and severe disorder that usually has its onset in adolescence (APA, 2000). Diagnosing BPD in adolescence has long been controversial, despite the growing body of evidence of a valid and reliable diagnosis before the age of 18 (Chanen, Jovev, McCutcheon, Jackson, and McGorry, 2008a; Johnson et al., 1999). There is convincing evidence for continuity of BPD from adolescence into adulthood (Cohen et al., 2008; Winograd, Cohen, and Chen, 2008). Early symptoms of BPD are associated with several serious functional and psychopathological problems in the long term (Winograd et al., 2008). BPD in adolescents has been found to be a better predictor than axis I disorders for psychopathology and psychosocial dysfunctioning later in life (Chanen, Jovev, and Jackson, 2007). Furthermore, borderline symptoms in adolescence are a predictor for social impairment and lower life satisfaction, lower academic and occupational functioning, less partner involvement, and a higher consumption of healthcare services at 20 year follow-up (Winograd et al., 2008).

Though there are no reliable figures, the prevalence of BPD in adolescence is roughly estimated at 1-3% (Bernstein et al., 1993; Lewinsohn, Rohde, Seeley, and Klein, 1993). This figure goes up to 10-14% when also milder cases are included (Bernstein et al., 1993), or when self-reports are used (Chabrol et al., 2004).

Despite the high prevalence and adverse consequences of BPD symptoms in the long term, only few treatment protocols have been developed and evaluated for adolescents. The available interventions are rather intensive and therapists generally need extensive training for conducting them (e.g. Cognitive Analytic Therapy (CAT), Dialectic Behavior Therapy for Adolescents (DBT-A), Mentalisation-based treatment for Adolescents (MBT-A)). Of those, only CAT has been evaluated in a Randomized Controlled Trial (RCT). In this RCT, 86 youngsters with BPD symptoms (age 15-18 years) were randomized to either Good Clinical Care (GCC) or to CAT (Chanen et al., 2008c). CAT comprises of 16-24 individual sessions of psychotherapy, based on elements of psychoanalytic object relations theory and cognitive psychology (Ryle, 2004). Both interventions showed equal and significant improvements over a two-year period on all measures (Cohen's d ranging from .54 to 1.38). The rate of improvement was (moderately) faster for secondary measures, but there were no differences between GCC and CAT on BPD symptoms or parasuicidal behaviour.

Though DBT has frequently been evaluated in adult samples with good results

(Binks et al., 2006), the adolescent version has only been evaluated in non-randomized, small samples (Fleischhaker et al., 2011; Katz, Cox, Gunasekara, and Miller, 2004; Rathus and Miller, 2002). DBT focuses on (para)suicidal behaviour, therapy interfering behaviours, and other dangerous, or destabilizing behaviours. DBT-A consists of 16 weekly multifamily sessions, and family therapy can be added. All studies available found a decline on (para)suicidal behaviour and/or depressive symptoms, with effect sizes (Cohen's d) ranging from .23 to 3.40.
The last treatment available for youngsters is MBT-A (Bleiberg, Rossouw, and Sharp, 2011). Mentalizing is our capacity to make sense of others and of ourselves, to be aware and to understand subjective states and mental processes of oneself and of each other. BPD patients are considered to have a fragile mentalizing capacity, which makes them especially vulnerable in interpersonal relationships (Bateman and Fonagy, 2010). MBT-A has not yet been evaluated.
All interventions described above require extensive additional training for therapists. Moreover, DBT-A and MBT-A are directed at adolescents with severe BPD symptoms, and are time-intensive. However, early intervention might prevent the adverse outcome in the long-term (Chanen et al., 2007; Winograd et al., 2008). Therefore, we developed low threshold care, not only for full-syndrome BPD adolescents, but also for (referred) sub-syndromal cases, which is time-limited and easy to implement in general mental health care. Emotion Regulation Training (ERT) is a manual-based group training for adolescents (aged 14-19) with BPD traits (van Gemert, Ringrose, Schuppert, and Wiersema, 2009a and 2009b), and is developed as an add-on to treatment as usual. The training is an adaptation of the Systems Training for Emotional Predictability and Problem Solving (STEPPS), developed by Blum and co-workers (Bartels, Crotty, and Blum, 1997). Problems in emotion regulation are often considered to form the core symptom of BPD (Linehan, 1993a; Putnam and Silk, 2005). ERT focuses on this subject, using the structure of STEPPS, complemented with elements of DBT skills training, and cognitive behaviour therapy. Age-specific adaptations are the duration of the program (17 weeks), the length of the sessions (105 minutes), and specific topics to meet the developmental stage of self-exploration (Steinberg and Morris, 2001). ERT has been evaluated in a randomized pilot study (Schuppert et al., 2009). Forty-three adolescents were randomized to either treatment as usual (TAU; N=20) or to a combination of treatment as usual and ERT (ERT+TAU; N=23). Both groups showed equal significant decline in borderline symptoms over a six month period. The ERT+TAU group improved significantly more on locus of control than the TAU group. The ERT protocol has been adapted according to the findings of the pilot study (van Gemert et al., 2009a and 2009b).

The current study aims to evaluate the effectiveness of ERT at a larger scale. The study was conducted in four mental health centers in the Netherlands. Adolescents (N=109) were randomized to either TAU, or to ERT+TAU. We hypothesized that the adolescents in the ERT+TAU condition would improve more on borderline symptoms, general psychopathology and quality-of-life than those in the TAU condition.

Next, we explored the predictive value of a history of abuse and/or trauma, depressive and externalizing symptoms. There is a paucity of studies that address the identification of predictors in the treatment of BPD, and hardly any study in adolescents. Barnicot et al. (Barnicot, Katsakou, Marougka, and Priebe, 2011) report a systematic review and meta-analysis on 41 treatment studies, three of which concerning adolescents. Predicting factors for drop-out were commitment to change, impulsivity, and the therapeutic alliance. In the current study, we hypothesized that ERT would be particularly beneficial for adolescents with higher symptom severity at baseline, and for completers (defined as having attended nine or more sessions).

Method

Sample

Participants were 109 adolescents aged 14 to 19 years (M=15.98, SD=1.22), who were referred for emotion regulation problems and/or BPD features to one of four mental health centers in the North of the Netherlands. Recruitment took place between November 2007 and February 2010. Initial diagnostic procedures were completed as customary for the center concerned. In case of emotion regulation problems or BPD symptomatology as the main problem area, adolescents were referred to trained clinicians for complementary screening. Next, adolescents and their parents or caretakers were referred for assessment to an independent research psychologist, who was blind for treatment allocation. To participate in the study, subjects had to meet at least two BPD criteria (according to SCID-II) (Weertman, Arntz, and Kerkhofs, 2000). Anxiety disorders, mood disorders or ADHD could be present as co-morbid disorders, but were not the primary diagnosis. Exclusion criteria were: psychotic disorders, conduct disorder, and substance dependence, as assessed by the K-SADS (Kaufman et al., 1997), and IQ below 80, as estimated on the basis of educational level.

Procedure

Figure 1 shows the flow chart of randomization and assessments. Randomization took place per participating center, as soon as the center had between 12 and 18 participants included in the study (informed consent and pre-treatment assessments completed). To improve the representativeness of the sample, stratified sampling was applied by randomizing first the adolescents with a score of 15 or more on the total scale of a structured interview on BPD severity (BPDSI-IV-ado, see measures section) (Schuppert, Bloo, Minderaa, Emmelkamp, and Nauta, 2012) and subsequently the adolescents with a lower score. Treatment conditions were TAU and ERT+TAU.

Assessments were accomplished at baseline and post-treatment (i.e., after ending the ERT, or after a comparable period), and at six months follow-up (for the ERT+TAU condition only). Adolescents in the TAU condition were not assessed at follow-up, since they were allowed to enter the ERT after post-treatment assessment. Participants and parents/caretakers each received a gift voucher of €5,- after each assessment.

Three trained independent research psychologists completed the assessments. Ratings on taped interviews (15%) were made by a trained clinical psychology student and a trained psychologist. The Intraclass Correlation Coefficient (ICC) for subscales proved to be excellent: 0.98.

Interventions

Emotion Regulation Training (ERT) is a manualized group training for adolescents (age 14-19) with BPD features (van Gemert et al., 2009a and 2009b). The focus of ERT is to improve the feeling of control over intense, strong emotions, by enhancing cognitive, social, and behaviour coping skills. ERT is based on Cognitive Behaviour Therapy (CBT, e.g., chain analysis, homework forms, cognitive restructuring) and elements of Dialectical Behavior Therapy (DBT) (Linehan, 1993b), like psycho-education on emotion regulation, and mindfulness based relaxation exercises.

The training consists of 17 weekly sessions of 105 minutes, followed by two booster sessions at 6 and 12 weeks. A "network" meeting takes place between session 4 and 5, where parents, caretakers, partners and close friends are informed about the background and contents of ERT. The training consists of three phases. The first phase (sessions 1-4, and 7) involves psycho-education, combined with instruction in chain analysis, and problem solving (e.g., time-out, helping thoughts, relaxation). The second phase (sessions 5-6) involves 'knowing yourself': participants are asked to take a closer look at their temperament and

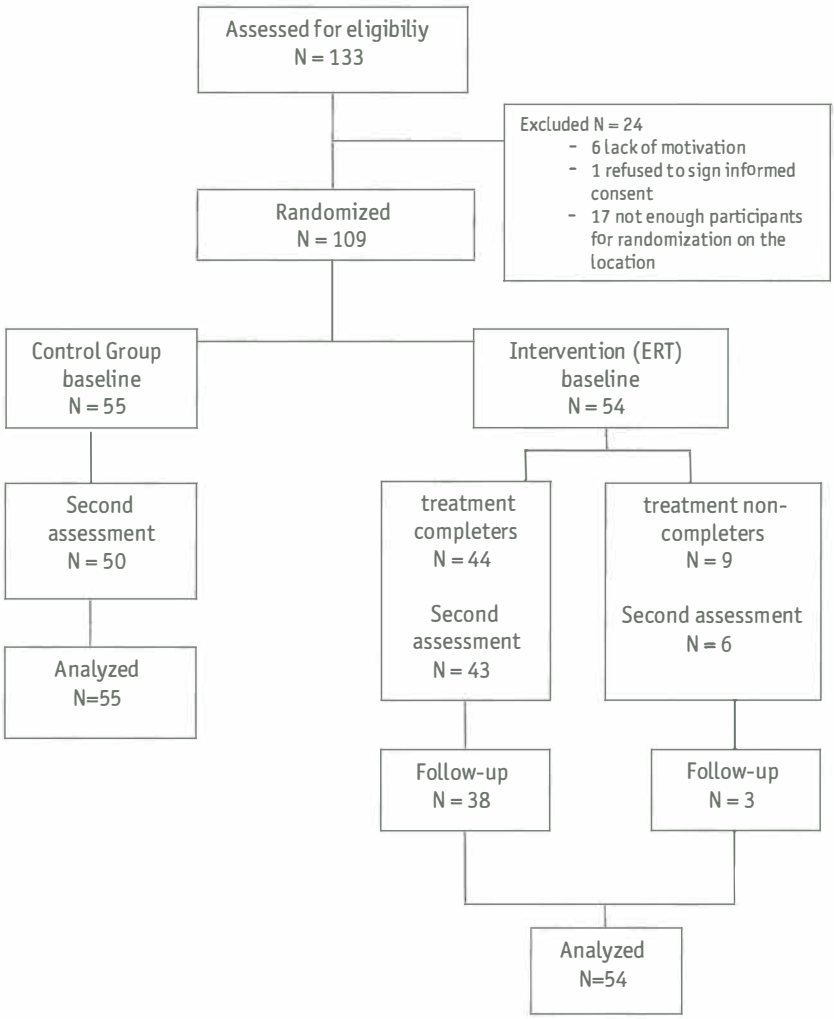

Figure 1: Flow chart assessment and randomization
ERT = Emotion Regulation Training

character, in relation to the way they feel and act. The third phase (sessions 8-17) focuses on lifestyle: how to make healthy choices considering for instance eating, sleeping, self-care (including self-mutilation), use of alcohol/drugs, and interpersonal contacts.

Treatment as Usual (TAU) consisted of (a combination of) pharmacotherapy, individual psychotherapy, counselling, family therapy, inpatient psychiatric care, and emergency care in case of self-mutilation or suicidal behaviour.

Therapists

For the current study, 13 therapists for the ERT groups were selected by the staff of the mental health centre they worked for. Ten therapists held a master's degree, and three therapists held a bachelor's degree with postgraduate training. All therapists had previous therapy experience in psychiatry (mean: 12.4 years; range 3-34 years), of which at least two years of experience in therapy with adolescents with borderline features. At least one of the two therapists per ERT group was a licensed cognitive behaviour therapist or clinical psychologist. Therapists received a one-day training on the ERT program by the author(s) of the ERT-program, and had supervision sessions by telephone or e-mail contact as needed. Next, therapists had two supervision sessions at the site during the weekly course. The ERT-therapists were not the individual therapist of the adolescents.

To keep the study as naturalistic as possible, there were no specific criteria for the therapists in the TAU condition. Number and type of contacts in TAU was checked in retrospect by the first author.

To enhance treatment adherence and comparability between centres, the manuals were highly structured. Treatment integrity of a random sample of 10 audio taped sessions was checked by an independent rater. On average, sessions covered 93% of the ERT manual.

Measures

The assessments were conducted by research psychologists who were blind to treatment condition. Baseline assessment (interviews and questionnaires) took about 3 hours, and the next assessments about 2.5 hours. In some cases, the second and third assessment were assessed at home or by telephone.

The Structured Clinical Interview for DSM-IV Personality Disorders – borderline personality disorder section (SCID-II-BPD; Weertman, Arntz, and Kerkhofs, 2000) consists of nine items, following the DSM-IV criteria. The instrument is developed for adults, but is frequently used among adolescents as well (Chanen et al., 2008). SCID-II-BPD was used to characterise the sample in borderline pathology level.

Different modules were used of the *Kiddie-Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime version* (K-SADS-PL) (Kaufman et al., 1997). The module disruptive behavior disorders and the module psychotic disorders were administered at baseline to obtain information on exclusion criteria. The modules traumatic experiences and post-traumatic stress disorder were assessed at post-treatment and were used to obtain additional information on trauma, as a possible predictor for therapeutic change (indicated as 'abuse').

The Borderline Personality Disorder Severity Index-IV–adolescent version (BPDSI-IV-ado) (Schuppert et al., 2012) is a semi-structured interview that consists of 72 items, spread over the nine criteria for BPD as in DSM-IV (APA, 2000), and is a reliable and valid instrument for the assessment of severity of borderline symptoms in adolescents in the past three months. The total scale (range 0-90) and the subscale 'affective instability' (range 0-10) were used as primary outcome measures.

The Symptoms Checklist–90–R (SCL-90-R) (Derogatis, Lipman, and Covi, 1973) is a questionnaire containing 90 items and assessing general psychological complaints. The instrument is frequently used and shows good psychometric properties (Arrindell, Barelds, Janssen, Buwalda, and van der Ende, 2006). The total score was added as a secondary outcome measure.

The Youth Quality-of-Life – research version (YQOL-R, 2002) is a validated questionnaire that consists of 56 items, divided in 41 perceptual items and 15 contextual items (Patrick, Edwards, and Topolski, 2002). Higher scores indicate a better quality of life. We used the perceptual subscale as a secondary outcome measure.

The Children's Depression Inventory (CDI) (Kovacs, 1981) is a 27-item questionnaire developed for children and adolescents to measure symptoms of depression in the past two weeks. Psychometric properties have been shown to be good (Roelofs et al., 2010). The total score of the CDI was used as a predictor.

The *SNAP-IV Rating Scale* is a frequently used parent report in ADHD research (Swanson, Sandman, Deutsch, and Baren, 1983). It addresses ADHD and ODD symptoms as described in DSM-IV (APA, 2000), and contains 26 items, spread over three subscales (inattention, hyperactivity/impulsivity, and oppositional defiant disorder). The total score is the sum of the weighed subscale scores. Psychometric properties have been shown to be good (Bussing et al., 2008). We used the total score as a predictor.

Statistical Analyses

Analyses were conducted along the intend to treat principle with multilevel analysis in the statistical program MlwinN (Rabash, Charlton, Browne, Healy, and Cameron, 2009), taking into account all available data at all data points. All continuous moderator variables were centered for ease of interpretation. That is, the weights for the time effects in the equations reflect the effects as estimated for a patient with a score equal to the sample means of the moderator variables. Four models were built, one each for BPDSI-IV-ado-total score, BPDSI-IV-affective instability, SCL-90-R, and YQOL-R. In the multilevel model, the statistical

significance of the fixed effects is tested using the approximate t-test, and of the random effects with the deviance test, with the significance level set at .05. The modeling strategy was as follows: First, dummy variables were used to represent the condition effect and the time effect, for Post-treatment and Follow-up (coded such that each parameter expresses the change between the measurement concerned and the baseline measurement). The effects of condition, time and its interaction were of primary interest, and therefore retained in all models. Second, to exploratory assess possible effects of relevant individual characteristics, we tested as fixed effects the moderators abuse, depression, and ADHD, and their interactions with time and/or condition, which were only preserved in the model when significant. The between-individual and within-individual variances were estimated as random effects.

Effect sizes were calculated using Cohen's d (Cohen's $d = M_1 - M_2 / \sigma pooled$), pre-post intervention for both groups, pre-follow-up intervention for the ERT group, and post-post intervention between groups.

Clinical significant change was determined through normative comparisons on borderline severity. We used the cut-off of 6, based on a sample of control adolescents that we described in an earlier study on our outcome measure (Schuppert et al., 2012).

Results

Participants

For a flowchart of assessment and randomisation see Figure 1. Initially, 133 adolescents were referred for ERT. 109 Adolescents were randomized to the two conditions. The mean number of DSM-IV criteria was 6.17 (range 3-9); 73% fulfilled five or more criteria. The mean number of therapy sessions was 12.1 (range 0-17; SD 4.8). Attrition was defined as having attended less than half of the training (nine sessions); the attrition rate was 19%.

Participants were free to use mental health care services, and the frequency of contacts between baseline and post-intervention was equal across conditions (F 2.0, p=.84). The mean number of individual contacts was 5.1 (SD 5.9; range 0-22) and 3.2 (SD 4.43; range 0-18) for family contacts. The number of participants admitted to inpatient care or day-care was equal (six adolescents in the ERT-group, and eight in the control-group, Chi-square analysis).

Demographic characteristics

There were no significant differences between conditions considering the main characteristics (Chi-square analysis): age (mean 15.98, SD 1.22), gender (96% female), divorce of the parents (49% divorced), contacts with justice (30%) or ethnicity (19% non-Dutch parent).

Use of addictives and psychotropic medication was considerate (both 29%). Alcohol misuse was defined as excessive according to either legislation (no alcohol before age 16) or recommendations of the Dutch government (no more than two alcoholic drinks (male) or one alcoholic drink (female) on average and no binge drinking). Only 34% of youngsters did not use any alcohol, while 33% reported social use, and 33% reported excessive use. There were no significant differences between groups with regard to addictives, medication, and alcohol. 55% of the adolescents reported a history of physical and/or sexual abuse, again with no significant differences between groups.

The effectiveness of the Emotion Regulation Training

Results of the primary and secondary outcome measures are presented in Tables 1 and 2. In summary, there were no significant differences between conditions on any of the measures. Both groups improved from baseline to post-intervention on all measures but quality-of-life. Also, the ERT group improved significantly from post-intervention to follow-up.

Severity of borderline symptoms: Tables 1 and 2 indicate that the mean total score of the BPDSI-IV-ado and of the subscale affective instability drop significantly between baseline and post-intervention. However, there are no significant differences between the ERT group and the control groups.

General psychopathology: Tables 1 and 2 show a significant decrease in the total score of the SCL-90-R between baseline and post-intervention. Again, no significant differences between the two groups were found.

Quality-of-life: The same pattern of results was found for the scores on the YQOL-R: there was a substantial increase of quality-of-life between baseline and post-intervention, but no differences between the groups were detected.

Further significant improvement over time was found in the ERT group compared to baseline at six-month follow-up. No comparison with the control condition could be made, since the follow-up assessment was only conducted in the active condition.

Table 2 also shows the results of the search for moderators of change. It was investigated whether depressive symptoms (CDI), symptoms of ADHD (SNAP-IV), and a history of physical and/or sexual abuse were associated with improvement on the outcome measures. More depressive symptoms at baseline were found to

Table 1: Pre- and post-intervention and follow-up scores (means (SD's)) for outcome measures

measure	treatment group	pre	post	follow-up	Effect size (Cohen's d)#	
					Pre-post	Pre-fu
BPDSI-IV-ado total score	ERT+TAU	18.23 (9.67) N=54	13.29 (9.53) N=48	11.27 (8.98) N=36	0.51	0.75
	TAU	20.35 (11.16) N=55	15.39 (9.00) N=49		0.49	
BPDSI-IV-ado affective instability	ERT+TAU	5.22 (2.57) N=54	3.88 (2.37) N=48	3.55 (2.19) N=36	0.54	0.70
	TAU	5.31 (2.53) N=55	4.29 (2.48) N=49		0.41	
SCL-90-R	ERT+TAU	209.43 (64.89) N=49	190.19 (73.58) N=48	170.98 (66.58) N=38	0.29	0.58
	TAU	216.72 (63.67) N=54	193.00 (63.63) N=48		0.37	
YQOL-R	ERT+TAU	53.83 (12.29) N=51	54.51 (13.17) N=48	59.61 (11.74) N=37	-0.05	-0.48
	TAU	52.93 (12.19) N=55	54.72 (13.31) N=49		-0.14	

Note: N differs due to missing values. ERT = Emotion Regulation Training; TAU = Treatment as Usual
BPDSI-IV-ado=Borderline Personality Disorder Severity Index - IV–adolescent version, SCL-90-R=Symptoms Checklist 90-Revised, YQOL-R=Youth Quality of Life Research Version
Effect sizes (Cohen's d) between groups at post-intervention: BPDSI-IV-ado total -0.23; BPDSI-IV-ado affective instability -0.17; SCL90 -0.04; YQOL-R -0.02

be associated with less reduction of borderline severity and general psychopathology at post-intervention, but this was unrelated to condition. At post-treatment and at follow-up, having more depressive symptoms (at baseline) was associated with higher borderline severity, and general psychopathology, and at follow-up with less quality-of-life. Further, having more ADHD symptoms was associated with less quality-of-life at follow-up. Also, a history of abuse was associated with less improvement in borderline severity and general psychopathology at post-treatment, and less improvement in general psychopathology and quality-of-life at follow-up.

Analysis of non-completers

Table 3 shows the differences between completers and non-completers. In general, adolescents who did not complete the intervention reported less symptomatology at baseline and higher quality-of-life. Multilevel analyses with regard to treatment effectiveness were repeated without the non-completers. Results

Table 2: Parameter estimates of the multilevel models of the outcome measures

Fixed effects	BPDSI-IV-ado total score	BPDSI-IV-ado affective instability	SCL-90-R	YQOL-R
	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Intercept (baseline score)	19.18 (0.73)***	5.26 (0.20)***	212.68 (4.63)***	53.33 (0.88)***
Post-treatment	-6.14 (1.19)***	-1.08 (0.29)***	-35.66 (8.30)***	2.41 (1.25)
Follow-up	-8.27 (1.09)***	-1.78 (0.33)***	-59.46 (10.48)***	8.84 (2.00)***
Post-treatment x condition	-1.57 (1.30)	-0.27 (0.38)	1.16 (8.90)	-1.47 (1.64)
CDI (baseline)	0.84 (0.09)***	0.15 (0.02)***	6.34 (0.54)***	-1.06 (0.09)***
Post-treatment x CDI	-0.21 (0.09)*		-1.26 (0.62)*	
Post-treatment x CDI x condition				
Follow-up x CDI	-0.38 (0.14)**		-3.77 (0.88)***	0.41 (0.15)**
SNAP (baseline)				
Post-treatment x SNAP				
Post-treatment x SNAP x condition				
Follow-up x SNAP				-2.31 (0.79)**
Abuse (baseline)				
Post-treatment x abuse	3.45 (1.27)**		21.40 (8.87)*	
Post-treatment x abuse x condition				
Follow-up x abuse			30.08 (13.66)*	-5.48 (2.53)*
Random effects				
Between individual variance	32.08 (6.19)***	1.97 (0.44)***	920.66 (221.53)***	37.94 (8.35)***
Residual variance at measurement occasions	25.90 (3.17)***	2.45 (0.30)***	1302.76 (160.49)***	44.24 (5.40)***

BPDSI-IV-ado=Borderline Personality Disorder Severity Index - IV–adolescent version, SCL-90-R=Symptoms Checklist 90-Revised, YQOL-R=Youth Quality of Life Research Version, CDI=Children's Depression Inventory, SNAP=ADHD measure; condition (ERT+TAU or TAU), abuse=history of sexual and/or physical abuse; SE=standard error. Empty cells: not included in the model (because of non-significance). *p< .05; **p< .01; ***p< .001.

Table 3: Means (SD's) completers/non-completers of the outcome measures at baseline; Mann-Whitney test

Measure	Completers (N= 41-44)	Non-completers (N= 8-10)	U
BPDSI-IV-ado total	19.26 (10.31)	13.70 (3.90)	151.00
BPDSI-IV-ado affective instability	5.51 (2.64)	3.92 (1.83)	133.00*
SCL 90	216.48 (63.50)	173.28 (63.61)	99.00
YQOL-R	52.26 (12.34)	62.26 (8.28)	84.00**

Note: N differs due to missing values. *p= .05; **p< .05
BPDSI-IV-ado = borderline personality disorder severity index - IV – adolescent version, SCL-90-R = symptoms checklist 90 revised, YQOL-R = youth quality of life research version

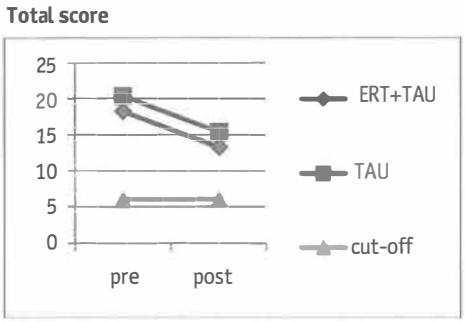

Figure 2: BPDSI-IV-ado means (total score) pre- and postintervention

indicated the same pattern of results, with no additional positive effect of the ERT intervention on all four outcome measures.

Clinical significant change: normative means (Figure 2)
A minority of participants in both groups reached an end-point within the normative range of the BPDSI-IV-ado total score (cut-off at 6): 19% of youth in the ERT condition (N=9 of 48) versus 12% in the control condition (N= 6 of 49) was remitted as a function of the cut-off at post-treatment. At six months follow-up, 67% of youth (N=24 of 36) still fell in the normative range of borderline symptomatology.

Discussion

To our knowledge, our study gives account of the largest sample in a treatment outcome study on adolescents with BPD features up till now, and is the second published RCT for this group (Chanen et al., 2008c). The study was conducted in general mental health institutes, with few exclusion criteria, thus enhancing external validity. The majority of adolescents (73%) fulfilled full BPD criteria according to DSM-IV. The attrition rate was low, and drop-outs had less symptomatology at pre-treatment.
Our results can be summarised as follows: 1. Adolescents improved over time on symptoms of affective instability, borderline symptomatology, and general psychopathology with moderate effect sizes at post-treatment and moderate to high effect sizes at follow-up. In addition, they reported higher standards of quality-of-

life at follow-up with an effect size in the moderate range 2. Symptoms decreased regardless of treatment condition. 3. We were unable to identify subgroups of adolescents that did benefit from the intervention. 4. Adolescents reporting more depressive symptomatology, or with a history of physical and/or sexual abuse reported less reduction of complaints. This appeared again unrelated to treatment condition and may merely reflect predictors of the course of symptoms rather than predictors of treatment outcome. 5. Non-completers were characterised by less symptomatology at pre-test. 6. Even though the reduction of complaints was in the moderate to high range, the majority of adolescents were still not within the normative range of complaints after treatment (85%) and at follow-up (67%). Research with adult BPD patients, on intensive treatment modules like SFT, TFP, and DBT, found comparable improvement as in the present study after six months of treatment (Bateman and Fonagy, 2004; Giesen-Bloo et al., 2006).

The current findings, that a relatively short intervention does not seem to have substantial additional benefits, are not only in line with our pilot study (Schuppert et al., 2009), but also with Chanen et al. (2008c), who found no added value of Cognitive Analytic Therapy above Good Clinical Care. These disappointing results ask for some considerations. (1) We hypothesised that a brief and time-limited intervention for BPD symptoms in adolescence might prevent the development of the full syndrome, taken the presumption that symptoms would not yet be as severe as in adults. However, it is possible that BPD symptoms are already persistent and serious, and require intensive treatment (as in BPD treatment of adult patients). Our brief module might be simply too limited for such a complex disorder. Recovery of BPD symptoms might need a more intensive intervention, like the evidence-based interventions developed for adult BPD patients (Bateman and Fonagy, 2004; Binks et al., 2006; Giesen-Bloo et al., 2006; Linehan, 1993a; Verheul et al., 2003). (2) ERT has been developed from different theoretical models. The training is perhaps too heterogeneous, too little embedded and/or too fragmented. The results of ERT might improve with an explicit theoretical model, which is also applied to the individual contacts and/or systems therapy. (3) The attrition rate was low and the participants of ERT frequently mentioned peer relationship as an important motivation to keep coming. However, the group format leaves little room for individual tailoring. (4) Non-completers showed higher quality-of-life and less symptoms at baseline. This group may not have enough internal motivation for a weekly intervention. (5) Due to time-constraints we did not assess axis I disorders at baseline, nor sexual abuse or trauma, leaving this to the individual therapist, previous to referral. It is conceivable that some of the adolescents would have had more benefit from specific treatment for depression

or abuse and trauma. (6) Though ERT pays attention to the family/system of the patient, this is limited. The intervention might profit of extension of parent/ caretaker involvement, either in a simultaneous group, or in a combination of ERT and systems therapy.
The low attrition rate (19%) in our study is remarkable: Chanen et al. (2008c) found an attrition as high as 54% after six months of therapy. In a study with a quasi-experimental design with DBT-A for adolescents with BPD symptoms, an attrition of 38% in the DBT-A condition was reported (Rathus and Miller, 2002). The low attrition rate in our study can partly be explained by peer contact, as mentioned by the adolescents.
A strength of our study is the low drop-out rate in the assessment: 91% of the adolescents participated in the second assessment, and 76% of the adolescents of the clinical group in the third assessment. It is important to aim for low attrition in research assessments, in order to prevent skewness in data, and to enlarge generalisability of outcomes (Barnicot et al., 2011).

Limitations
Though to our knowledge this is the largest RCT on treatment of BPD symptoms in adolescents, the sample size is still rather small. Small and medium treatment effects may therefore have been missed.
By including both syndromal and subsyndromal patients, the scores on the borderline measures were already low at baseline, which gave little room for improvement in those adolescents.
Due to time constraints we did not assess all personality disorders or axis I disorders. Therefore, we were not able to adjust for comorbid disorders. ERT aims at a number of changes in the individual, namely cognitive restructuring, improvement of locus of control, improvement of emotion regulating strategies, improvement in life style. Unfortunately, we did not include specific measures on those mechanisms of change. We therefore do not know for sure whether the adolescents were deviant on those capacities in the first place. Additionally, we do not know whether ERT was unable to change some of those factors, or whether an accomplished change in fact did not lead to changes in borderline psychopathology.

Implications
Despite the fact that there is a growing body of evidence for effective interventions for adult BPD patients, research in this field for adolescents is still in its teens. Despite the poor results, our study may encourage clinicians to realize that

early intervention in adolescents with BPD symptoms is necessary: a majority of adolescents still suffered from borderline symptomatology, even after 12 months of TAU (with or without ERT). Outcome was especially negative for adolescents with a history of abuse, and with more severe comorbid symptoms including symptoms of depression and ADHD/ODD. The low attrition rate shows that the treatment was feasible, while the response and the enthusiasm of therapists and parents can be seen as an indication of the clinical need for specific treatment modules for BPD symptoms in adolescence.
There is a strong need to identify effective treatments for this group of youngsters that seem highly invalidated.

Chapter 5 Parental rearing and psychopathology in mothers of adolescents with and without borderline personality symptoms

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Abstract

Background:
A combination of multiple factors, including a strong genetic predisposition and environmental factors, are considered to contribute to the developmental pathways to borderline personality disorder (BPD). However, these factors have mostly been investigated retrospectively, and hardly in adolescents. The current study focuses on parental factors in BPD features in adolescence.
Methods: Actual parenting was investigated in a group of referred adolescents with BPD features (n=101) and a healthy control group (n=44). Assessments included adolescents and their mothers.

Results:
Adolescents reported significantly less emotional warmth, more rejection and more overprotection from their mothers in the BPD-group than in the control group. Also, their mothers showed significantly more general psychopathology and clusters C personality traits than mothers in the control group. Contrary to expectations, mothers of adolescents with BPD features reported the same level of cluster B personality traits, compared to mothers in the control group. Hierarchical logistic regression revealed that parental rearing styles (less emotional warmth, and more overprotection) and general psychopathology of the mother were the strongest factors differentiating between controls and adolescents with BPD symptoms.

Conclusions:
Adolescents with BPD features experience less emotional warmth and more overprotection from their mothers, while the mothers themselves report more symptoms of anxiety and depression. Addition of family interventions to treatment programs for adolescents might increase the effectiveness of such early interventions, and prevent the adverse outcome that is often seen in adult BPD patients.

Background

Borderline personality disorder (BPD) in adolescence places a significant burden on patients and their families and often has negative long-term effects on a broad range of domains, such as recurrent Axis I pathology, poor general functioning, and problems in relationships and self-care (Chanen et al., 2008b; Crawford et al., 2008).

A combination of strong genetic predisposition and environmental factors is considered as a model for the development of BPD (Chanen & Kaess, 2012; Crowell, Beauchaine, and Linehan, 2009; Distel et al., 2011). Several studies have found an increased risk of BPD in families, especially in first-degree relatives (Gunderson et al., 2011; Johnson et al., 1995). Next to genetic factors, several psychosocial factors have been identified as risk factors for the development of BPD. For instance, growing up in a dysfunctional family, parental rearing styles, and early childhood adversities have all been found to be related to the development of BPD traits (Paris, 2003). The main theories on the relationship between family factors and the development of BPD, are psychoanalytic. It has been suggested that BPD has its cause in mothers that did not allow their child to separate, i.e. were overprotective (Materson and Rinsley, 1975). In the last decades, in addition to attachment theory there is an increasing interest in the interaction between parenting, genetically influenced temperamental factors, childhood adversities, and parental psychopathology (Paris, 2003; Paris, 2008). Insecure and disorganized attachment may underlie one of the core symptoms of BPD: difficulties in interpersonal relationships. Though the scientific support is still small, all theories suggest a causal relationship between separation and/or attachment problems and the development of BPD. It is conceivable that these problems in early childhood are even a bigger challenge for parents that face psychopathological problems themselves.

The current paper investigates the role of maternal rearing as well as maternal psychopathology in relation to BPD features in youth with current BPD features, and healthy controls.

Parental rearing factors are widely presumed to be of substantial influence in the development of BPD. Findings from these studies are robust and impressive. For instance, 92% of the adult BPD patients reported a history of emotional neglect (assessed with seven items in a semi-structured interview) in a study with 358 BPD patients and 109 patients with another PD (Zanarini et al., 1997). Perceived lack of maternal care, as retrospectively assessed by attachment and parental bonding instruments, was found to be associated with BPD traits in a commu-

nity sample of 18-year-old students with BPD features (n=393), selected from a group of 5000 students (Nickell, Waudby, and Trull, 2002). More recently, negative parenting styles (rejection and overprotection), as well as conflictive parenting, were found to be associated with the occurrence of personality disorder (PD) in general, but this was not specifically investigated for borderline PD (Cheng, Huang, Liu, and Liu, 2011). This study concerned a community sample of 181 students with personality disorder (as determined with the International Personality Disorder Examination, IPDE) and 2605 controls. In conclusion, adults with BPD consistently report on a history of less parental warmth, more rejection and hostility, and more overprotection in their childhood.

However, all aforementioned studies are retrospective. Though retrospective studies are valuable, it is well-known that they are prone to recall bias (Maughan and Rutter, 1997), and interpretation of these studies needs caution. Only few studies investigated actual parenting behaviour in relation to BPD features in adolescents, all in community samples. Only one study reported on parental overprotection: the Children in the Community (CIC) study (n=776) reported that maternal overinvolvement had no direct impact on a persistence or an emergence of BPD 2.5 years later. However, the combination of maternal overinvolvement with maternal inconsistency was a predictor of BPD (Bezirganian, Cohen, and Brooks, 1993). In another paper on the CIC study, low parental affection and aversive parenting were both associated with an elevated risk for BPD in the offspring (Johnson, Cohen, Chen, Kasen, and Brooks, 2006). Maternal hostility was also associated with BPD features in adults in a community sample of mothers (n=162) with low income (Carlson, Egeland, and Sroufe, 2009). So, the studies within childhood are scarce, all community-based, and the evidence for the role of parental rearing is much less clear and less strong than retrospective research suggests.

The present study compares current maternal parenting behaviour in a clinical sample of referred adolescents (14-19 years) with BPD features (n=101) to a healthy control group (n=44). Data from the adolescents, as well as from their biological mothers, were collected. Based on previous research on the development of BPD, we hypothesised that adolescents with BPD features and their mothers to report less emotional warmth, more rejection, and more overprotection, as compared to healthy controls.

Parental rearing may partly be explained by parental psychopathology. Indeed, a recent overview focusing on parenting behavior of mothers with BPD concludes that several factors play a part in the poor psychosocial functioning that has been found in their children (Stepp, Whalen, Pilkonis, Hipwell, and Levine,

2011). Among these factors are insensitive communication (critical, intrusive, and frightening), role confusion (i.e. addressing the child as a friend or parent), and increased risk of abuse. In line with these findings, stronger associations between negative parenting styles and personality disorder symptoms were found in students that grew up with a parent with PD than in students that grew up with a parent without PD (Cheng et al., 2011), but this was not investigated specifically for borderline PD.

Parental psychopathology may also have an impact on the development of BPD on its own, even though it may not be a specific relation, and the evidence seems mixed: maternal BPD increases the risk for a range of emotional and behavioral problems, including BPD (Stepp et al., 2011). Contrary to expectations, no elevated risk for PDs in offspring of parents with psychiatric disorders was found in the CIC study, though this was extensively researched using several standardised interviews with mothers and offspring (Johnson et al., 2006; Johnson et al., 2011). In the current study, we explored differences in general psychopathology and personality symptoms between mothers of referred adolescents with BPD features and healthy controls. In view of the transgenerational transmission of BPD (Stepp et al., 2011), we expect mothers of BPD adolescents to report more cluster B symptoms and more general psychopathology compared to mothers in the healthy control group.

The current study is unique in that it investigates all of the aforementioned factors in a clinical sample of adolescents with BPD features, and a healthy control group, and their mothers. Actual parental rearing styles (overprotection, rejection, emotional warmth), and psychopathology in mothers (general psychopathology and personality traits) were entered in a hierarchical logistical regression model, to examine which factors account for differences between adolescents with BPD features and healthy controls.

Methods

Participants

Participants were adolescents aged 14 to 19 and their mothers. The adolescents of the clinical sample (n=101) were referred to the Emotion Regulation Training, a group training for adolescents with BPD features (ERT) (van Gemert, Ringrose, Schuppert, and Wiersema, 2009a and 2009b). Inclusion criteria were: age 14-19, IQ ≥ 80 (according to school results), and at least two borderline

Table 1: Demographics

	Clinical group (n=101)#	Control group (n=44)	Comparison Fisher's exact test
Age (SD)	16.32 (1.15)	15.93 (1.20)	p=.72
Women	97 (96.0%)	37 (84.1%)	p=.02
Parents divorced	48 (50.0%)	8 (18.2%)	p<.000
Contact with justice	29 (29.9%)	6 (13.6%)	p=.06
Non-Dutch parent	16 (16.3%)	4 (9.1%)	p=.31

Due to missing data n varies from 96 – 101

symptoms as assessed by SCID-II (Weertman, Arntz, and Kerkhofs, 2000). The mean number of BPD criteria was 6.02 (SD 1.99); 75.2% fulfilled full criteria for a BPD diagnosis. Adolescents with psychotic disorders, conduct disorder, or serious misuse of drugs or alcohol were excluded from the study. The corresponding sections of the Kiddie-Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime version (K-SADS-PL) (Kaufman et al., 1997) were used to examine these exclusion criteria.

Healthy controls and their mothers (n=44) were recruited through letters, posters, and mouth-to-mouth at secondary schools. They were never treated or referred for psychological complaints.

The ethical committee of the Department of Psychology Groningen approved the study. Written informed consent of all participants and mothers was obtained after extensive information about the study. Demographic variables of the participants are shown in Table 1.

Measures

The Structured Clinical Interview for DSM-IV Personality Disorders – borderline personality disorder section (Weertman et al., 2000) was used to assess borderline pathology. This instrument has been developed for adults, but is frequently used in adolescents as well (Chanen et al., 2008b).

Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime version (K-SADS-PL) (Kaufman et al., 1997) is a semi-structured interview based on DSM-IV. We used the modules disruptive behavior disorders and psychotic disorders to obtain information on exclusion criteria.

Perceived parenting was measured by *EMBU-C*. EMBU is a Swedish acronym for 'my memories of upbringing' (Markus, Lindhout, Boer, Hoogendijk, and Arrindell, 2003). EMBU-C is a self-report for youth and an adaptation of the original retrospective self-report. It is a frequently used and well-evaluated instru-

ment (Aluja, Del Barrio, and Garcia, 2006; Markus et al., 2003; Oldehinkel, Veenstra, Ormel, de Winter, and Verhulst, 2006). Three factors were included in the current study: Emotional Warmth (19 items), Rejection (17 items) and Overprotection (11 items).

The Symptoms Checklist-90-R (SCL-90-R) (Derogatis, Lipman, and Covi, 1973) is a frequently used self-report questionnaire consisting of 90 items, that assesses general psychopathological complaints. In the current study, the list was completed by the mothers. Validity and reliability of the SCL-90-R have shown to be good (Arrindell, Barelds, Janssen, Buwalda, and van der Ende, 2006; Olsen, Mortensen and Bech, 2004).

The *Personality Disorders Questionnaire 4+* (PDQ-4+) (Hyler, 1994) is a self-report questionnaire assessing personality disorders (PDs) as described in DSM-IV. It consists of 99 true/false items. We used the Dutch version by Akkerhuis et al. (Akkerhuis, Kupka, Groenstein, and Nolen, 1996). The PDQ was added to assess personality traits in mothers; we used the sum scores of cluster A, B, and C personality traits respectively.

Data analysis

SPSS-19 was used to analyse all data, with 5% significance levels. Since the data was not normally distributed, nonparametric Mann-Whitney tests were conducted to compare differences between groups. Logistic regression analyses were performed to examine to what extent parental rearing styles and psychopathology in mothers contribute to severity of borderline symptoms. All variables on parental rearing styles and parental psychopathology were entered in the model, followed by a stepwise removal of non-significant variables. The final model consisted of variables that all have a unique and significant correlation with BPD features.

Results

Table 2 presents the differences in parental rearing style as perceived by adolescents, between adolescents with BPD features and healthy controls. In the borderline group, adolescents reported significantly less emotional warmth, more overprotection and more rejection as parental rearing styles by their mothers. Contrary to expectations, there was no significant difference between groups on cluster B personality traits in mothers, but mothers in the clinical group reported significantly more cluster C personality traits compared to mothers in the con-

Table 2: Differences between groups (Means (and SD))

	Clinical group (n=96-101)	Control group (n=44)	Comparison (U)	Effect size (Cohen's d)
Mothers				
PDQ cluster A	3.80 (3.76)	2.91 (3.73)	1746.50	.24
cluster B	3.24 (2.93)	3.04 (2.98)	1989.50	.07
cluster C	5.15 (3.27)	3.92 (3.45)	1539.50**	.37
SCL-90 Total score	127.87 (33.34)	110.80 (21.68)	1402.50**	.61
Adolescents				
EMBU -EW	55.29 (12.16)	61.98 (9.54)	3964.50***	-.61
-R	27.61 (7.04)	22.55 (4.00)	1132.50***	.88
-O	24.54 (5.31)	21.08 (5.25)	1381.00***	.66

**p<.01; ***p<.000
Mann-Whitney test between groups. EMBU = parental rearing style child/parent version; EW = emotional warmth; R = rejection; O = overprotection; SCL-90 = symptoms checklist 90; PDQ cluster A/B/C = personality disorders questionnaire cluster A/B/C (corresponds with DSM-IV).
Due to missing values n varies from 140-145.

Table 3: Logistic regression of parental rearing styles and psychopathology in mothers

	Wald	p value	OR
Constant	.27	.602	.41
Emotional warmth	10.40	.001	.93
Overprotection	10.50	.001	1.16
General psychopathology (SCL-90)	5.06	.024	1.02

Dependent variable: group membership (adolescents with BPD symptoms versus controls); SCL-90 = symptoms checklist 90; OR = unadjusted odds ratio
Nagelkerke R^2= .30

trol group. No significant differences were found on cluster A personality traits. However, differences in general psychopathology were highly significant between mothers of adolescents with BPD features and mothers of healthy controls.
Table 3 presents the results of the hierarchical logistic regression analyses. The non-significant variables were removed in the following order: cluster A personality traits in mothers, rejection (parental rearing), cluster C, and lastly cluster B personality traits in mothers. The three remaining variables (general psychopathology of the mother, and parental rearing: emotional warmth and overprotection) were all significantly associated with borderline severity in the adolescent. Nagelkerke R^2 was .30.

Discussion

Borderline personality disorder is a frequently studied condition that has its roots in childhood and adolescence, and is caused by multiple factors. Though it is widely accepted that some of these factors lay within family circumstances and parental rearing, this has mostly been evaluated retrospectively in community samples rather than clinical samples. In this study we examined parental rearing styles, and parental psychopathology in a group of 101adolescents with BPD features, 44 healthy controls, and their mothers. One of the strengths of our study is that actual parenting was investigated, so there is no recall bias. Also, this is the first study to report on referred adolescents with BPD features. Furthermore, to our knowledge, there is a paucity of research of parental psychopathology, both on axis I and axis II problems (Cheng et al., 2011).

The main results of our study are as follows: (1) Adolescents with current elevated levels of BPD features report higher levels of maternal rejection, overprotection, and lower emotional warmth. (2) Mothers of adolescents with BPD features report more general psychopathology and cluster C personality symptoms, but no more cluster A and cluster B symptoms. (3) Three variables were the strongest predictors of BPD features in adolescents, namely the parental rearing styles less emotional warmth and more overprotection, and more general psychopathology in mothers.

Contrary to expectations, we found no elevated levels of maternal cluster B personality traits in mothers of adolescents with BPD features. However, we did find higher levels of maternal cluster C traits in this group. Our findings differ from the study of Gunderson et al. (2011), who found a 3- to 4- fold increased level of BPD in first-degree probands of BPD patients. Cheng et al. (2011) found an increased risk for PD in students that were raised by a parent with personality pathology, but differences in (clusters of) parental or student PDs were not reported in their study. Next to the transgenerational transmission model (Stepp et al., 2011), another factor in the pathway to BPD is assumed to be dysfunctional parenting. This may be an explanation for the increased levels of cluster C traits in our sample: mothers with increased levels of cluster C (anxious, fearful) personality traits, may raise their children with more overprotection, and thus increase the risk of BPD in their offspring. Even more, in combination with general psychopathology (like anxious/depressive symptoms), those mothers may be unstable and unpredictable, and thus arouse instability in children that are already vulnerable for the development of BPD features.

Most (psychodynamic) theories on the development of BPD suggest that inap-

propriate parenting, like a lack of emotional warmth, high levels of parental criticism/regression, or overprotection, increase the risk of BPD symptoms. However, adolescents with BPD features may provoke these parenting behaviors, by their impulsive, instable, and dangerous behavior. These two causal directions may even reinforce each other.

In our study, the parental rearing styles emotional warmth and overprotection, together with increased general psychopathology in mothers, were associated with higher levels of severity of BPD features in adolescents. The model was able to classify 70% of the adolescents correctly (i.e. being assigned to the clinical or the control group) by using these three variables. Our findings are in line with the CIC study (Johnson et al., 2006), who found an association between aversive parental behavior and low parental affection, and BPD. However, they found no direct association between parental psychiatric disorders and increased risk for offspring PD. As in our study, Cheng et al. (2011) found negative and conflicting parenting styles to be associated with the occurrence of personality disorder in general.

We found higher levels of emotional warmth in the control sample then in the clinical sample. Both parent and adolescent personality factors have been found to be relevant for explaining emotional warmth as parenting behavior (Haan, Dekovic, and Prinzie, 2012). It has been suggested that emotional stable parents are less anxious, and are therefore better able to handle problematic behavior in their adolescent children (Haan et al., 2012). Further exploration of moderators in the pathway to BPD is necessary, in order to develop interventions that aim at specific components of the disorder.

The contribution of parenting styles and maternal psychopathology is not unique to BPD features in youngsters (Weich, Patterson, Shaw, and Stewart-Brown, 2009). The same factors have been found to be associated with anxiety disorders (Lieb et al., 2000) and depression (Weissman et al., 2005). It is yet unclear what specific pathway leads to specific psychopathology.

There are, of course, some limitations. We used a cross-sectional design, so no causal interferences can be made. Though the sample size of the clinical group is large, the sample size of the control group is moderate. Further, our sample consisted almost only of girls, so generalization to a mixed population needs caution. On the other hand, this seems to reflect the general gender distribution among referred adolescents with BPD. We used the self-report PDQ-4 to assess traits of personality disorders in mothers. It cannot be ruled out the results would have been different if we used a formal diagnostic interview in the mothers, e.g. the SCID-II (First, Gibbon, Spitzer, Williams, and Benjamin, 1997).

Conclusions

Our study aims to contribute to solution of the complex puzzle of the pathogenesis of BPD. Adolescents with BPD features indeed report to be raised by less emotional warm, more overprotective, and more rejective mothers than healthy controls. Their mothers are more anxious / fearful than controls. Up to now, only few age-specific interventions for BPD symptoms in adolescents have been developed. Even less interventions have been evaluated (Ougrin, Tranah, Leigh, Taylor, and Rosenbaum Asarnow, 2012), and the results of these interventions are disappointing (Chanen et al., 2008c; Schuppert et al., 2009, Schuppert et al., submitted). It is particularly notable that most interventions pay little attention to parents or caretakers. However, systemic interventions might focus on parenting skills and help parents to show more warmth to their adolescents and to encourage the adolescent to become independent in a responsible way. Improvement of parental anxiety and mood related symptoms might not only benefit themselves, but also their children. Mutual understanding of mechanisms that contribute to interpersonal difficulties in families may help both adolescents and their parents to reduce obstructions in their relationship. Early interventions, not only in young individuals, but also in families, might prevent the adverse outcome that is often seen in adult BPD patients.

Chapter 6 Severity of borderline personality symptoms in adolescence: relationship with parenting stress, parental psychopathology, and rearing styles

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Abstract

Few studies have examined actual parental rearing styles and parental psychopathology in relationship with borderline personality (BPD) symptoms in adolescence. Moreover, parenting stress has not yet been examined in this group. In the present study, 101 adolescents (age 14-19 years) with BPD symptoms, and their mothers, were included. Assessments were made on severity of BPD symptoms, parental rearing styles, and on psychopathology and parenting stress in mothers. Multiple regression analyses were used to examine potential predictors of borderline severity.

Contrary to expectations, there was no correlation between severity of BPD symptoms in adolescents and parenting stress. Only perceived parental overprotection was significantly related to BPD severity. Further, the combination of perceived maternal rejection, with cluster B personality traits in mothers, was significantly related to BPD severity in adolescents. The current study provides a small contribution to the disentanglement of developmental pathways that lead to this complex and invalidating disorder.

Introduction

In the past decade, there has been increasing research effort to disentangle the developmental pathways that lead to a diagnosis of borderline personality disorder (BPD; Chanen and Kaess, 2012; Fruzetti, Shenk and Hoffman, 2005; Livesley, 2008). It is now widely accepted that BPD develops from a combination of a strong genetic predisposition and environmental factors (Distel et al., 2011; Gunderson et al., 2011; Paris, 2003). However, most studies on environmental factors have been conducted in adult BPD patients, are retrospective, and are therefore prone to recall bias (Hufford and Shiffman, 2003). Yet, it is important to comprehend the mechanisms that lead to BPD at an early stage, in order to enable prevention, early detection, and intervention (Chanen, Jovev, McCutcheon, Jackson, and McGorry, 2008a). Early interventions may prevent the poor outcome in adulthood that has been found in several studies (Cohen, Crawford, Johnson, and Kasen, 2005; Zelkowitz et al., 2007).

The current study focuses on actual parental rearing styles, parental psychopathology, and parenting stress in a group of adolescents with BPD symptoms, and their mothers.

Parental rearing Different parental rearing styles have since long been associated with different types of psychopathology in offspring (e.g. Bowlby, 1977; Parker, 1983). Many BPD patients report retrospectively that they perceive the rearing by their primary caregivers as seriously deficient. Linehan (1993a) formulated a biosocial theory that BPD symptoms are the result of a combination of an invalidating environment (sexual, physical, and/or emotional abuse) and a biological predisposition of emotional vulnerability. Emotional invalidation denotes the repeated experience of punishment, minimisation, or ignoration by the primary caregiver. Linehan's theory is widespread, despite a paucity of empirical evidence. Moreover, some of the findings are even conflicting. Linehan's model has been tested in a group of 1044 female students (Reeves et al., 2010). Contrary to expectations, parental emotional invalidation was not associated with BPD. Inconsistent treatment, and emotionally withdrawn and/or overcontrolling parenting have been found to be associated with an increased risk for the development of BPD (Johnson, Cohen, Chen, Kasen, and Brook, 2006; Zanarini et al., 1997). Other studies used different concepts, and used the terms low parental care and overprotection, which have been found to be associated with BPD (Nickell, Waudby, and Trull, 2002; Timmerman and Emmelkamp, 2005; Zweig-Frank and Paris, 1991).

Though this is valuable information, the interpretation of it needs caution. Most

studies examined community samples of students as informants, looking retrospectively to their upbringing. Memories are likely to be distorted (Hufford and Shiffman, 2003), and the perception of (maladaptive) parenting might be influenced by typical BPD traits like emotional dysregulation and interpersonal difficulties.
To complement these studies based on retrospective information of BPD patients themselves, studies based on actual parenting behaviour are useful. Bezirganian, Cohen, and Brook (1993) found in a longitudinal community study (Children In the Community study (CIC); n=776; mean age16.4, SD 2.8, range 11-20) that maternal inconsistency, but only in combination with overinvolvement, was predictive for BPD in the offspring. In another publication of the CIC study, Johnson et al. (2006) reported on parental behaviour assessed by several semi-structured interviews with mothers and offspring. They found low parental affection and aversive parenting behaviour to be associated with an elevated risk for the development of personality disorders (including BPD) in the children.
Parental psychopathology Another risk factor that is considered to play a part in the development of BPD, is parental psychopathology (both Axis I and axis II problems). Several studies have shown that children of mothers with a diagnosis of BPD have an increased risk of emotional and behavioural problems, including borderline personality symptoms (for a recent review, see Stepp, Whalen, Pilkonis, Hipwell, and Levine, 2011). The CIC study, mentioned above, specifically focused on offspring of parents with psychiatric disorders, using several standardized interviews both with mothers and their offspring. Contrary to expectations, they found no elevated risk for PDs (Johnson et al., 2006; Johnson, Liu, and Cohen, 2011). However, another study showed stronger associations between PD symptoms and negative parenting styles in students that were raised by a parent with PD, than in students that grew up with a parent without PD (Cheng et al., 2011).Though several studies have indicated various parental risk factors in the development of BPD, associations between factors are sporadically reported. However, it is conceivable that some of the explored factors are not associated with BPD symptoms in itself, but only in the co-occurrence of another factor. For instance, of the studies described above, the CIC study (Bezirganian et al., 1993) reported on the effect of a combination of factors: maternal inconsistent parenting behavior and maternal overprotection.
Parenting stress Next to parental rearing behaviour, increased levels of parenting stress have been found to be associated with psychopathology (Pesonen, Räikkönen, Heinonen, and Komsi, 2008; Semke, Garbacz, Kwon, Sheridan, and Woods, 2010). Though the relation between parenting stress and psychopathology is thought to be reciprocal, Pesonen et al. (2008) found that the effect of

parenting stress on certain child characteristics appears to be greater than the other way around. To the best of our knowledge, parenting stress has not yet been evaluated in the context of adolescent borderline personality disorder.
The current study explores characteristics of parental rearing styles, parental psychopathology, and parenting stress, in mothers of adolescents with BPD traits who were referred for treatment to an outpatient clinic. Assessments included both adolescents and their biological mothers. We hypothesise that severity of BPD symptoms in adolescents is positively influenced by emotional warm and supportive parenting (low rejection, high emotional warmth, low overprotection), and low levels of psychopathology in mothers (personality disorder traits and general psychopathology). Next, we explore the role of parenting stress in relation to severity of BPD symptoms in adolescents, and the correlations between variables. Based on the findings in studies on various psychopathological problems in children and adolescents and their relation with parenting stress, we hypothesise that increased levels of parenting stress are associated with increased levels of BPD severity in adolescents. Further, multiple regression analyses are performed to explore to what extent perceived parental rearing, parental psychopathology, parenting stress, and the second order interactions between these variables, can predict severity of BPD symptoms in adolescents.

Method

Participants

Demographic characteristics of the adolescents are shown in Table 1. The sample consisted of adolescents (n=101; 96% female; mean age 16.3 (SD 1.15); range 14.0 to 18.7 years) referred to the Emotion Regulation Training (ERT; van Gemert, Ringrose, Schuppert, and Wiersema, 2009a and 2009b), and their mothers. Five mental health centres in the Netherlands participated in the study. ERT is a treatment module for adolescents with BPD symptoms. Inclusion criteria were: age 14-19, IQ ≥ 80 (according to school results), and two or more BPD symptoms as assessed by SCID-II (Weertman, Arntz, and Kerkhofs, 2000). The mean number of SCID criteria for BPD was 6.02 (SD 1.99). 75.2% fulfilled full criteria for a BPD diagnosis. Exclusion criteria were: psychotic disorders, conduct disorder, or serious addiction to drugs or alcohol. The corresponding chapters of the K-SADS (Kaufman et al., 1997) were used to examine exclusion criteria. Both adolescents and their mothers received a gift voucher of €5,- after the assessment.

Table 1: Demographics

	Adolescents (n=101)[a]
Age Mean (SD)	16.32 (1.15)
Women	97 (96.0 %)
Parents divorced	48 (50.0 %)
Contact with justice	29 (29.9 %)
Non-Dutch parent	16 (16.3 %)
SCID-II BPD items Mean (SD)	6.02 (1.99)
SCID-II BPD diagnosis	76 (75.2%)

[a] Due to missing data n varies from 98 - 101

The medical ethical committee of the Department of Psychology Groningen approved the study. Written informed consent was obtained after extensive information about the study.

Measures

The *Structured Clinical Interview for DSM-IV Personality Disorders* (SCID-II; Weertman, Arntz, and Kerkhofs, 2000) is developed for assessment of personality pathology in adults, but the interview is frequently used in adolescents as well (Chanen et al., 2008b). We used the BPD section to assess borderline pathology.

The Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime version (K-SADS-PL; Kaufman et al., 1997) is a frequently used semi-structured interview based on DSM-IV criteria. The modules disruptive behavior disorders and psychotic disorders were used to obtain information on exclusion criteria.

To assess perceived parenting, the *EMBU-C* was used. EMBU is a Swedish acronym for 'my memories of upbringing'. The original child version was developed by Perris et al. (1980); we used the version described by Markus, Lindhout, Boer, Hoogendijk, and Arrindell (2003). In previous studies, the reliability of the subscale Favouring Subject proved to be low (Oldehinkel, Veenstra, Ormel, Winter, and Verhulst, 2006; Liber et al., 2008), which was also the case in our study. We therefore removed this subscale from further analysis. The remaining list consisted of 47 items, spread over three factors: Emotional Warmth (19 items), Rejection (17 items) and Overprotection (11 items). EMBU-C has been frequently used and evaluated; psychometric properties were good (Markus et al., 2003; Oldehinkel et al., 2006).

The *Parenting stress Index-short form (PSI-sf;* de Brock, Vermulst, Gerris, and Abidin, 1992) is an adjusted and short version of the Parenting Stress Index (PSI;

Abidin, 1983), measuring the amount of stress parents experience in daily life. The questionnaire consists of 25 items.

Severity of borderline symptoms was assessed by the *Borderline Personality Disorder Severity Index-adolescent version* (BPDSI-IV-ado), a semi-structured interview that contains of 72 items, spread over the nine BPD criteria in DSM-IV (APA, 2000). The instrument is based on the version for adult BPD patients (BPDSI-IV; Giesen-Bloo et al., 2010) and was adapted to adolescents (Schuppert, Bloo, Minderaa, Emmelkamp, & Nauta, 2012). It was developed as a treatment outcome measure and is suitable for the measurement of BPD severity. The psychometric properties are good (Schuppert et al., 2012).

The *Symptoms Checklist-90-R (SCL-90-R;* Derogatis, Lipman, and Covi, 1973) assesses general psychopathological complaints, and is a frequently used self-report questionnaire consisting of 90 items. Several studies showed good validity and reliability (e.g. Arrindell, Barelds, Janssen, Buwalda, and van der Ende, 2006). We used the total score to assess general psychopathology in mothers.

The *Personality Disorders Questionnaire 4+ (PDQ-4+*; Hyler, 1994) is a self-report questionnaire assessing personality disorders in DSM-IV. It consists of 99 true/false items. We used the Dutch version by Akkerhuis et al. (1996). The PDQ was added to assess personality traits in mothers. It is well-known that there is significant overlap between personality disorders, especially within DSM-IV clusters. Therefore, we used sum scores for the three clusters A, B, and C.

Data analysis

SPSS-19 was used to analyse all data, with 5% significance levels. Because most data was not normally distributed, non-parametric tests (Kendall's τ) were used to examine correlations between variables. Multiple regression was conducted to examine whether maternal rearing styles, maternal psychopathology, and parenting stress contributed to severity of borderline symptoms in the adolescents. First, z-scores of all variables were derived, and entered in the model, together with second order interactions between variables. Variables were then removed in a step-down procedure: after the removal of a variable with a significance level of $p > .1$, the analysis was repeated with the remaining variables. This procedure was repeated until all variables and second order interactions between variables that were not significant ($p > .1$), were removed. In the next step, the remaining variables and second order interactions were entered in the model. If the second-order interaction was significant, both main effects of the concurrent variables were also maintained in the model, even if not significant in itself.

Table 2: Correlations and Means (SD); Kendall's τ

	1	2	3	4	5	6	7	8	9
1. borderline severity	19.3 (10.4)								
2. parenting stress	.03	86.7 (26.0)							
3. emotional warmth	-.06	-.21**	55.3 (12.2)						
4. rejection	.13	.26***	-.31***	27.6 (7.0)					
5. overprotection	.24***	.11	.16*	.19**	24.5 (5.3)				
6. general psychopathology	.01	.15*	-.01	.15*	.00	127.9 (33.3)			
7. cluster A	-.09	-.10	.04	-.03	-.03	.26***	3.8 (3.8)		
8. cluster B	.03	-.07	-.03	.06	-.05	.34***	.46***	3.2 (2.9)	
9. cluster C	.02	-.03	-.01	-.02	-.14	.32***	.34***	.48***	5.2 (3.3)

*p < .05; **p < .01; ***p < .001

Results

Table 2 shows the means (and SDs) of all variables, and the correlations between variables. Borderline severity in adolescents was strongly related with perceived overprotection (Kendall's $\tau = .24$, $p < .001$), but not with any other variable, particularly not with parenting stress. General psychopathology in mothers and all three clusters of personality symptoms in mothers were highly significantly correlated. Also, the three parental rearing styles emotional warmth, rejection, and overprotection were significantly correlated. Parenting stress as reported by the mothers showed a significant correlation with perceived parental rejection and emotional warmth, and with general psychopathology in mothers, but not with perceived parental overprotection or maternal personality symptoms.

The results of the final model are shown in Table 3. The multiple regression analysis revealed that only one variable in our study was significantly related with severity of borderline symptoms, that is perceived parental overprotection ($B = 4.06$, $p < .001$). Higher levels of parental overprotection as reported by the adolescents, was strongly associated with higher levels of BPD severity. Considering the second order interactions between variables, only the interaction between

Table 3: Results of the final multiple regression model

				95% CI		
	B	S.E.	p	Lower	Upper	Partial η^2
Intercept	19.48	1.23	<000	17.03	21.93	.78
Overprotection	4.53	1.36	.001	1.83	7.24	.14
Rejection	.50	1.78	.28	-3.04	4.04	.00
Cluster B	2.66	1.89	.16	-1.10	6.43	.03
Rejection*Cluster B	-8.49	3.19	.01	-14.85	-2.12	.09

S.E. = standard error; CI = confidence interval
Dependent variable: borderline severity

perceived parental rejection and cluster B symptoms in mothers showed a significant relation with severity of BPD symptoms in adolescents (B = -4.02, p = .02). Low levels of rejection in combination with low levels of cluster B traits in mothers were associated with lower severity of BPD severity in adolescents. Also, the combination of high levels on these two factors was associated with lower BPD severity in adolescents. The combination of high levels of rejection and low levels of cluster B traits in mothers, was associated with higher severity of BPD symptoms. Also, the combination of low levels of rejection and high levels of cluster B traits in mothers, was associated with increased BPD severity in adolescents.

Discussion

The present study evaluated the relationship between severity of BPD symptoms, parental rearing styles, parenting stress, and parental psychopathology in a clinical sample of 101 adolescents with BPD traits, and their mothers. Though most of these factors have been well established in personality research in the past decades (see Paris, 2003), most studies used a retrospective design, which has the disadvantage of a recall bias (Hufford and Shiffman, 2003). Moreover, we found no reports on parenting stress in personality research.

Our results can be summarized as follows: (1) We found no correlation between severity of BPD symptoms and parenting stress. (2) Perceived parental rejection and emotional warmth, and general psychopathology in mothers, showed a significant association with parenting stress. (3) Perceived parental overprotection was the only parental rearing style that was significantly associated with severity of BPD symptoms. (4) Low levels of rejection in combination with low maternal

cluster B symptoms was associated with low rates of adolescent borderline severity. Also, high rejection and high maternal cluster B symptoms was associated with less borderline symptoms in youth. The combination of high levels of perceived parental rejection, and low levels of cluster B personality traits in mothers, was associated with lower levels of BPD severity, as well as the reverse (low rejection and high cluster B in mothers associated with lower BPD severity in adolescents).

To the best of our knowledge, there is no study that reports on parenting stress and personality disorder. However, parenting stress has been examined in other psychiatric disorders in children and adolescents (e.g. Epstein et al., 2008; Pesonen et al., 2008; Semke et al., 2010). It is remarkable that in all these studies, psychopathology in the child was associated with increased levels of parenting stress, in contrast to our findings. High levels of parenting stress have previously been associated with negative parenting behaviour, which on its turn, has been linked to an increase of behavioural problems in adolescence (Anderson, 2008). In our study, lower levels of perceived maternal emotional warmth, and higher levels of maternal rejection were associated with increased levels of parenting stress. A recent study by Bennett, English, Rennoldson, and Starza-Smith (2012), found locus of control to be the strongest predictor of parenting stress in parents of children with a brain tumour. Though this is a completely different sample, the mechanisms might be comparable. Both rejective parenting, and cold and distant parenting, might reflect a lack of locus of control. Moreover, Bennett et al. (2012) found that child disability and problem behaviour did not contribute to parenting stress, which is in line with our results. Further research in adolescents with BPD symptoms may focus on other aspects of parenting, like for instance locus of control.

Contrary to expectations, we found only the parental rearing style overprotection to be associated with higher levels of borderline severity in adolescence. Adolescents who reported higher levels of parental overprotection, also reported more BPD severity. There are several possible explanations for this association. Adolescents with severe BPD will generate worry and concern in their relatives. Parents might overprotect them in order to prevent further decline. Another explanation might be that parents who have a tendency to overprotect their children, might arouse BPD problems in adolescents that are already vulnerable for BPD traits. Research on developmental pathways in other psychiatric disorders found evidence for reciprocal effects of parenting and child behaviour. For instance, low parental warmth predicted higher levels of depressed mood in a sample of 7-12 year old girls (n=2451), and the other way around: depressed mood

predicted decreases in parental warmth (Hipwell et al., 2008). Our findings are in line with the CIC study (Johnson, Cohen, Chen, Kasen, and Brook, 2006), who found overcontrolling parenting to be associated with an increased risk for development of BPD. The other two parental rearing styles we examined, emotional warmth and rejection, were not significantly related with severity of BPD symptoms. These findings differ from the findings of Cheavens et al. (2005), who examined a community sample of 202 undergraduates students (mean age 18.85) who retrospectively reported on their upbringing. They found a significant correlation between BPD symptoms and parental criticism. However, a formal diagnostic instrument for BPD symptoms or severity of symptoms was not used, which might explain the differences between our outcomes. Also, the retrospective design might have influenced their results. In conclusion, studies that examined actual parental rearing behaviour, found a strong association between parental overprotection and borderline symptoms in youth.

In line with expectations, adolescents had the lowest rates of borderline symptoms if they experienced little rejection from their mothers in combination with little symptomatology of cluster B in their mothers. However, the rest of the interaction effect is puzzling in the absence of main effects for maternal rejection and maternal cluster B symptoms. It is difficult to understand why the parental rearing style rejection would only be associated with increased borderline severity in adolescents in combination with lower levels of cluster B traits in mothers. Also, we found the reverse: low levels of rejection, but only in combination with high levels of cluster B traits in mothers, were associated with increased borderline severity. And, finally, high levels of rejection, in combination with high levels of cluster B traits in mothers, was associated with lower borderline severity in adolescents. A tentative interpretation may be that these adolescents did no emotionally depend on their mother, but may have found another primary attachment figure, which may have protected them to some extent. Future research could test this hypothesis by including information on the attachment figure.

There are some considerations to be made. We used a cross-sectional design, so no causal interferences can be made. Further, our sample consisted almost only of girls, so generalization to a mixed population needs caution. A strength of our study is that, as far as we know, both parenting stress and psychopathology of parents themselves have hardly been researched before in personality research. Another strength is that we used both adolescents, and their mothers as informants. To the best of our knowledge, this is the first study that combined actual parental rearing behaviour with parent characteristics and parenting stress in a sample of adolescents with BPD traits. Despite the growing body of evidence on

the environmental pathways to BPD, still a lot remains unclear. Our results suggest that parental overprotection, whether or not in combination with personality traits in mothers, are important factors. Also, our study is the first to focus on parenting stress as a risk factor for and/or result of severity of BPD symptoms in adolescents. Further research is necessary to confirm our cross-sectional focus, preferably in a longitudinal design. There is a paucity of research on age specific interventions for adolescents with borderline personality symptoms (Ougrin et al., 2012). What's more, the results of research on the available interventions are disappointing (Chanen et al., 2008c; Schuppert et al., submitted). Further research may focus on the effect of newly developed or improved early interventions, that include a systemic approach, in order to prevent the poor outcome of adolescent BPD in the long term.

Chapter 7 General discussion

Introduction

Today, it is widely acknowledged that personality disorders have their origin early in life (DSM-IV-TR, American Psychiatric Association, 2000). Though this has been accepted now for many decades, both in research and in clinical practice, a diagnosis of personality disorder is often not made before the age of 18. However, there is increasing evidence that personality disorders can be valid and reliably diagnosed in adolescence (for a review: Miller, Muehlenkamp, and Jacobson, 2008).

In the last decades there has been a growing interest in the early symptoms and the course of borderline personality disorder (BPD). The Children in the Community study (CIC) is one of the few prospective studies that published several papers on the risk factors and resilience factors for development of BPD (Bezirganian et al., 1993; Cohen, Crawford, Johnson, and Kasen, 2005; Crawford et al., 2008; Johnson, Cohen, Chen, Kasen, and Brook, 2006; Johnson et al., 1999, 2011). In their 20 year follow-up study from childhood through to adulthood, several environmental factors (such as childhood neglect or abuse, maladaptive parenting, and adverse school experiences) were found to be risk factors for the development of a personality disorder later in life. Next to environmental factors, biological factors (genetic and neurobiological) play an important role in the developmental pathways to BPD (Chanen and Kaess, 2012; Distel et al., 2010; Leichsenring, Leibing, Kruse, New, and Leweke, 2011). Recently, research has identified specific environmental life events (such as sexual or violent assault, divorce/break-up, or job loss), that moderate the genetic and environmental interaction on BPD features (Distel et al., 2011).

Several studies have shown significant impairment in functioning over the years. From the CIC study, Winograd, Cohen, and Chen (2008) found that borderline symptoms early in life predicted lower social, academic and occupational functioning, lower life satisfaction, less partner involvement, and a higher consumption of healthcare services at 20 years follow-up. Similar findings have been described by others (e.g. Chanen, Jovev, and Jackson, 2007; Zelkowitz et al., 2007).

Despite the growing body of interest in the development and course of BPD, age-specific treatment modules are very limited (Chanen and Kaess, 2012; Ougrin, Tranah, Leigh, Taylor and Rosenbaum Asarnow, 2012; Schuppert, van Gemert, Wiersema, and Nauta, 2011). Considering the long-term consequences, it is all the more remarkable that there is so little attention for the treatment of borderline symptoms in adolescence. Such programs could alleviate the symptoms of BPD

and prevent the adverse outcome in the long-term (Chanen, Jovev, and Jackson, 2007; Miller et al., 2008).
The current thesis described five studies in adolescents with BPD symptoms. In this chapter, these studies will be discussed and related to the current state of affairs in the field of BPD research in adolescence.

Assessment of borderline severity in adolescents
One of the conditions to perform a reliable study on the effectiveness of a treatment module is the use of a valid and reliable instrument, designed for repeated measures. Indeed, research on assessment and treatment of adult BPD patients has acknowledged the importance of the development and use of specific measures (for an overview: see Zanarini et al., 2010). One of the instruments recommended is the BPDSI-IV (Giesen-Bloo et al., 2010). This semi-structured interview, developed to assess severity and frequency of BPD symptoms in adult patients, is suitable for use in treatment outcome studies. Chapter 2 described the psychometric properties of two newly derived instruments, based on the BPDSI-IV: an adolescent version and a parent version (BPDSI-IV-ado and BPDSI-IV-p).
The following strengths can be addressed: 1. The BPDSI-IV adolescent and parent versions proved to be valid and reliable instruments. 2. The instruments are useful for repeated assessment. 3. The instruments have been developed for research purposes, but can also be used in clinical practice. 4. Combining both versions of the BPDSI-IV offers the opportunity of a multi-informant approach.
1. Both the adolescent and the parent version of the BPDSI-IV were found to be valid and reliable for the assessment of borderline severity in a clinical sample (N=122; mean age 15.9) and a healthy control group (N=45; mean age 15.5). The differences between the clinical sample and the control group were highly significant on the total scale and on all nine subscales. Construct and concurrent validity were sufficient. The results were comparable for the adolescent and the parent version, and comparable with the BPDSI-IV for adults. The BPDSI-IV directly addresses the core symptoms of BPD, thus allowing for specific assessment and evaluation of treatment effectiveness, rather than relying on measures of general psychopathology, as has been done in the past (for a review: see Backer et al. 2009). One of the greatest advantages in doing so, is that it gives the opportunity to directly evaluate the effect of the treatment on the core symptoms of the disorder.
2. One of the important strengths is the usefulness for repeated assessment, which makes the BPDSI-IV adolescent and parent versions appropriate for the evaluation of effectiveness of treatment. Previous studies for the evaluation of

treatment effectiveness often used diagnostic instruments like the Structured Clinical Interview for DSM–IV Axis II Personality Disorders (SCID-II; First, Gibbon, Spitzer, Williams, and Benjamin; Chanen et al., 2008b). Diagnostic instruments usually assess symptoms over a long period of time. Semi-structured interviews like SCID-II comprise people's whole life, or their adult life. This implies that repeated measurement with such an instrument can never detect improvement. Moreover, diagnostic instruments for BPD are developed for adults, and age-specific instruments for adolescents are scarce.

In the same timeframe when we developed the BPDSI-IV-ado, another BPD interview has been developed for the same age group, based on DSM-IV (CI-BPD; Zanarini, 2003a; Sharp, Ha, Michonski, Venta, and Carbone, 2012). This instrument has been evaluated in a sample of 190 inpatient adolescents (mean age 15.4), and showed good psychometric properties. Contrary to the BPDSI-IV-ado, the CI-BPD is developed for diagnostic purposes, and not for the evaluation of treatment. Also, there is no parent version of the CI-BPD.

3. Another strength of the BPDSI-IV is its usefulness not only for research purposes, but also for the evaluation of treatment effectiveness in everyday practice. Keeping the structure of DSM-IV, gives the opportunity of mapping a clear profile of all nine borderline symptoms, and to document changes during treatment. It can also give additional information in treatment outcome studies on the course of recovery. Research has shown that personality structure is rather stable from as early as adolescence, while stability of the personality profile is only moderate (Vaidya, Gray, Haig, and Watson, 2002). In other words, the quality of personality traits is more stable compared to the quantity of these traits (Clark, 2007). In BPD patients, the affective symptoms have been found to be the most stable, whereas impulsivity was the most unstable symptom (for a review, see Vriend-Bosma and van Megen, 2011). Such information can help to improve new or additional treatment modules, based on what mediates recovery.

4. Further, we explored briefly on informant agreement. Agreement between adolescents and parents proved to be .67 for the total group (clinical sample and controls together). However, agreement declined to .35 when only adolescents with BPD traits and their parents were taken into account. In our study, differences between parents and adolescents were the same on all subscales, adolescents rating their symptoms higher than their parents. Low agreement between adolescents and parents has since long been found (Achenbach, McConaughy, and Howell, 1987), even more so for internalizing than for externalizing problems (Achenbach et al., 1987; Ready and Clark, 2002). Internalizing pathology is less observable than externalizing pathology, which could explain the lower agreement

on these items. More recently, Tromp and Koot (2010) reported on a sample of 110 adolescents referred to mental health care, and their parents. They found a general ICC of .45, with least agreement on intimacy problems (-.20). During the development of the parent version of the BPDSI-IV, we decided to remove the internalizing subscales (identity disturbance, emptiness, and dissociation/paranoid ideas), that we considered outside of the observation of parents. The remaining six subscales contain better observable behavior like mood swings, (para)suicidal behavior, and anger. Higher agreement was expected since the parent version was limited to these subscales. Nevertheless, agreement was only moderate. Disagreement, however, can be considered as a possibility to obtain additional information and as an opportunity to use different information that is valid in itself (Ferdinand, van den Ende, and Verhulst, 2004; Tromp and Koot, 2010).

There are some aspects that need additional attention. First, the mean scores in our clinical samples were substantially lower than in adult samples: 19.07 (SD 10.39), versus 33.95 (SD 1.23) in the Giesen-Bloo et al. study (2006), and 32.93 (SD 8.0) in the study of Rinne, van den Brink, Wouters, and van Dyck (2002). There are a few explanations for this. In studies with adult BPD patients, usually one of the inclusion criteria is meeting full criteria of the disorder (at least five out of nine). We decided to also include sub-syndromal BPD adolescents, meeting two to five DSM-IV criteria, allowing for early interventions and ideally prevention of (some of) the adverse outcome in the long-term (Chanen et al., 2008c; Zanarini, Frankenburg, Hennen, Reich, and Silk, 2006). Obviously, adolescents with less BPD symptoms, will have lower scores on the BPDSI-IV-ado accordingly. In the clinical sample, however, youth meeting full BPD criteria had a mean total score of 22.56, still lower than in adult samples. An explanation may be that BPD symptoms are not yet as severe in adolescents as in adult patients.

Second, clinical cut-off scores were derived for use in clinical practice. A cut-off score of six on the adolescent version of the BPDSI gave high sensitivity and sufficient specificity. A score of four on the parent version gave both high sensitivity and specificity. Though these are useful results, the scores on the specific subscales in the control group were rather low, which made it not possible to present cut-off scores for the nine subscales separately. BPDSI-IV-ado and BPDSI-IV-p are therefore less appropriate for the evaluation of improvement of specific symptoms relative to a normative score. If an adolescent has elevated scores on the BPDSI, the clinician can administer a structured diagnostic interview in order to determine the presence of a BDP diagnosis. It is important to note that the BPDSI is not a diagnostic tool per se, and should therefore be combined with for instance adaptations of the Structured Clinical Interview for DSM-IV Personality

Disorders (SCID-II), the Structured Interview for DSM-IV Personality (SIDP-IV), the Personality Disorder Examination (PDE), or the Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV)(see Zanarini et al., 2010). One should note, however, that none of these diagnostic instruments have been validated in an adolescent sample.

Third, our sample sizes, especially of the control group, were still rather low. Furthermore, only one sample with borderline symptoms and one control sample participated in the validation study. Our group consisted of predominantly white, female adolescents. It is unknown whether the adolescent and parent version of the BPDSI-IV are valid and reliable for use in other populations, such as male adolescents, or youth with another ethnic background. Also, further examination of the discriminant validity of adolescent BPD severity in relation to axis I disorders, such as depression, anxiety, or addiction, is needed.

Finally, it may seem illogical to develop a DSM-IV–based instrument on the border of the transition to DSM5 (see APA website: www.dsm5.org; updated June 21, 2011). However, the definitions of the syndrome will change, but not the patients. Core symptoms in DSM5 are impairments in self functioning and interpersonal functioning, together with pathological personality traits (negative affectivity, disinhibition, and antagonism). At first sight, it seems that there is only little overlap with DSM-IV. But apart from the new structure (which is an improvement in that it enhances the opportunities for better understanding in the mechanisms of personality disorders), most of the disorder's symptoms as described in DSM-IV are recognizable to a great extent in DSM5. Moreover, there is still the need of mapping severity of symptoms for the individual patient. The detailed degree, to which BPDSI-IV (adult, adolescent, and parent version) has been elaborated, will also be of use when patients are diagnosed according to DSM5, in research as well as in clinical practice. All items in BPDSI-IV are relevant considering DSM5, though in a different order. Identity disturbance, emptiness, dissociation, and unstable relationships are held under criterion A. Criterion B includes impulsivity, suicidal behavior, fear for abandonment, affective instability, and anger. Some other symptoms have been added: empathy, self-direction, and anxiousness. The structure of the BPDSI-IV will need to be revised, completed, and reinvestigated according to the new standards. The DSM5 proposal for assessment of personality traits and personality disorders emphasizes the importance of a dimensional instead of dichotomic approach. The BPDSI-IV (and the adolescent and parent versions) attaches seamless to this view.

Effectiveness of Emotion Regulation Training for adolescents with symptoms of Borderline Personality Disorder

Chapter 3 and 4 described the results of two studies on a newly developed Emotion Regulation Training (ERT) for adolescents with symptoms of BPD.

Over the last few decades, several psychotherapeutic manuals have been developed for adult BPD patients. These treatment modules and the evaluation of some of the manuals have changed opinions on the course and outcome of BPD (Dixon-Gordon, Turner, and Chapman, 2011; Paris, 2010). There is more optimism, and many mental health centers have their own (B)PD team to offer specific care for adult patients. However, specific treatment modules for adolescents are sparse and hardly evaluated, perhaps because clinicians are reluctant in diagnosing BPD at a young age (see chapter 1 and 2). Age-specific interventions could improve development and functioning in adolescence, and prevent the serious adverse consequences in the long-term (Chanen et al., 2008c; Johnson et al., 2006).

Chapter 3 and 4 describe two randomized controlled trials with adolescents with BPD symptoms (study 1: N=43; study 2: N=109). In both trials, adolescents with BPD symptoms were randomized to the ERT plus treatment as usual (TAU), or to TAU only. Outcome measures included severity of BPD symptoms, general psychopathology, locus of control (only in the first study), and quality of life (only in the second study). Taking both studies together, we reported the following results. 1. In both trials, we found improvement over time considering BPD severity and general psychopathology. However, this was independent of treatment condition. 2. In the second study, we found improvement over time considering quality of life. Again, this was independent of treatment condition. 3. In the first study, we found more improvement in locus of control in the ERT condition, compared to the control group. 4. In the second study, 19% of the adolescents in the ERT group showed remission of BPD symptoms after treatment, versus 12% of the adolescents in the control group. This difference between groups was not significant. 5. Follow-up assessments were only conducted in the ERT group: six months after treatment, 33% showed remission. 6. We also examined possible predictors of treatment outcome in the second study. Adolescents with higher levels of depression or ADHD/ODD at baseline, and who reported a history of abuse, had worse outcome, regardless of treatment condition.

In all, we concluded that early interventions for BPD symptoms in adolescence are feasible and necessary. However, no additional effect of ERT over TAU could be demonstrated in our studies, except for an increase of locus of control in the first study.

A first important strength of our studies is the fact that both studies were designed as randomized controlled trials. Up till now, the only comparable controlled study in borderline adolescents is the study on Cognitive Analytic Therapy in Australia (Chanen et al., 2008c). All other studies that have been published on BPD treatment in adolescents used a non-controlled or quasi-experimental design (for an overview: see Backer et al., 2009; Hutsebaut, 2009).
Second, another strength in the current studies is the number of adolescents that participated. In the pilot study, 43 youngsters were included, and another 109 in the second trial. Compared to other published research trials on this subject, this is the largest sample by far.
Third, we decided from the start to make a comparison between treatment as usual (TAU) and ERT in combination with TAU. We decided to include several different mental health care settings and a large number of therapists, to enhance generalizability of our findings to clinical practice. Therapists participating in the research trial were not involved in the development of the ERT program, or in the research project itself. All therapists worked as a clinician (psychologist) at the institute where they conducted the ERT group. This emphasizes the fact that the results of our studies resemble everyday clinical practice, which optimizes generalization to everyday care.
A fourth strength of the studies was the use of a semi-structured clinical interview for the measurement of severity of BPD symptoms, BPDSI-IV-ado. As far as we know, this is the first time that such an instrument has been used in adolescents for treatment evaluation purposes. As stated above and discussed in chapter 2, the interview has proven to be valid and reliable.
Fifth, treatment attrition in our second RCT was lower than expected (19%). High attrition rates were expected based on previous publications (58%, Chanen et al., 2008c; 38%, Rathus and Miller, 2002) and on the assumption that it would be difficult to keep a group of adolescents with BPD symptoms interested in group therapy as long as 17 weeks. However, many of the adolescents argued that the most important reason to keep coming to the ERT sessions was because of the positive interaction with the peer group and the feeling of mutual understanding. Attrition rate was also remarkably low for the assessments. This is presumably indebted to the great effort of our research assistants, who have been extremely insistent in their invitations, both to the adolescents and their parents. The amount of time and effort that was needed has not been monitored, but it is likely to be comparable to the findings of Allott, Chanen, and Pan Yuen (2006).
Though our RCTs as described in Chapter 3 and 4 have many strengths, some limitations should also be noted. First, due to time constraints, no full assessments

of DSM-IV Axis I and Axis II pathology have been conducted at baseline. Baseline assessment (BPDSI-IV-ado/p, some parts of the K-SADS (Kaufman et al., 1997), and several questionnaires) already took approximately 3 hours, both for the adolescent and for the parent. This was considered to be the maximum amount of time that could be asked for. However, it is likely that comorbid psychopathology of the referred adolescents has been rather diverse, which may have influenced the results (Zanarini et al., 2010). Though we did find that high depression scores a baseline predicted a poorer outcome, major depressive disorder was not formally assessed. The lack of effects of ERT in the adolescents with high scores on the child depression inventory, may have masked effects on other aspects of BPD, such as emptiness, identity confusion, or dissociation. The same remark can be made on anxiety disorders. Also, inclusion criteria were meeting only two DSM-IV criteria of BPD, and not the full borderline syndrome. Of course, this increases the diversity of the sample to a great extent. Interpretation of the results and generalization therefore needs caution.

Second, ERT is not grounded in a particular theory. Elements of different therapies have been used, such as elements of dialectical behavior therapy (DBT; Linehan, 1996), and cognitive behavioral therapy, with the Systems Training for Emotional Predictability and Problem-Solving program (STEPPS; Blum et al., 2008; Bos, van Wel, Appelo, and Verbraak, 2010) as starting point. ERT may be too fragmented, just touching the core symptoms (such as emotional dysregulation), and not being able to bring about fundamental changes.

A third limitation is the fact that treatment as usual (TAU) was only briefly monitored. Reliable information was only obtained on the number of individual and/or family contacts, or inpatient treatment, during the period between baseline and second assessment. It should be noted that the intention was initially to obtain this information from the individual (or family) therapist of the participants. However, it proved difficult to engage all therapist in accurate registration of their interventions, with a lot of diversity in accuracy: the forms were completed quite poorly by some therapists, and very accurately by others. This gave us data that was not very reliable, so no further report could be made.

Fourth, follow-up assessment was only available for the sample that was randomized to the ERT condition, and, due to time and money constraints, only for a period of six months. ERT was developed around 2001, and by that time there were no manuals available in the Netherlands for the treatment of BPD symptoms in adolescence. Mental health workers were very positive when they noticed the program, and were eager to implement the training in their own practice. By the time the research trial started, ERT was already implemented in some

institutions. Since there was no specific treatment alternative, it was considered ethically wrong to deny patients a potentially effective treatment. It was therefore compromised that, in case of randomization to TAU only, one could enter an ERT group directly after the second assessment (approximately after half a year). Over 50% of the adolescents did so. A third assessment in this group would not be appropriate, since they would have had ERT, and would not be a control sample by that time any more.

Fifth, though randomization was proceeded after baseline assessment, research assistants were not blind to allocation as the study progressed. Adolescents and parents talked about their treatment during the follow-up assessments, which made it impossible to keep research assistants blind to allocation.

Sixth, we found in the second trial a significant reduction of BPD symptoms over time, with an effect size of Cohen's d = 0.5 in both groups. The number of treatment sessions in treatment as usual, was equal among the two conditions: the mean number of individual sessions was 5.1 (SD 5.9), and the mean number of family sessions was 3.2 (SD 4.4). The total number of sessions in TAU approximately corresponds with one meeting every two weeks. Compared to treatment modules for adult BPD patients, this is less. For instance, in Schema Focused Therapy, Transference Focused Therapy, or Dialectical Behavioral Therapy in adult BPD patients (Giesen-Bloo et al., 2006; Linehan, 1996), the recommended number of therapy sessions is twice a week. This may be an explanation for the lack of effect in our study.

Finally, we did not use a formal "active" comparison condition, for example, a supportive group psychotherapy. Such a research design has the advantage that common factors of psychotherapy can be controlled for. Though this is a very transparent and informative way to research newly developed treatment modules, one of the disadvantages is that large samples are needed to detect any difference between the two conditions (Baskin, Tierney, Minami, and Wampol, 2003; Zanarini et al, 2010).

Contrary to expectations, the only significant positive difference between groups was found in the pilot study, and concerned an improvement of locus of control in the ERT group. There are several factors that may have played a part in the lack of differential effects. As has been frequently shown in the treatment of adult BPD patients, BPD is a serious and complex disorder that requires a substantial investment in treatment, both of patients and therapists (for an overview see Paris, Chapter 8, 2008). We hypothesized that BPD in adolescents might not (yet) be as severe as in adults, and that the long and intensive treatment would not be

necessary, nor meet the fragile motivation of adolescents. However, a 17 week course, less than two hours a week, without parallel manualized individual treatment, might be too minimal. And, what is more, most adolescents did not attend all sessions: the mean number of attended sessions was 11.3 (range 1 to 17) in the first study, and 12.1 (range 0 to 17) in the larger trial.

Considering the modest motivation that is often seen in adolescents, we hoped that ERT could possibly function as a first step in a stepped care model. It has the advantage to be brief, easy to implement in everyday care, and it can assist therapists to pioneer in a poorly developed area. During the training for therapists, we experienced their enthusiasm and relief that an intervention for adolescents with BPD symptoms was developed. In our studies, we found all therapists eager to get a better understanding of BPD symptoms in adolescence and to apply a more specific treatment for this group. However, we found no additional effect of ERT above TAU.

Even though these negative results are disappointing, the findings are of great importance for further development of BPD treatment protocols in adolescence. The current RCTs have shown that there is a need for age-specific treatment protocols for adolescents with borderline features. Therapists and the mental health institutes they work for have been enthusiastic to participate in the research trials, and all participating institutes have now implemented ERT. Realization of the fact that BPD symptoms can be diagnosed in adolescence, and the impact of these symptoms in the long term, may have influenced the way of thinking and the approach of therapists towards these patients in the institutions that participated in our RCTs.

Research assistants who interviewed adolescents and parents for the second and third assessment, got positive reactions about ERT. The relatively low attrition rate can be interpreted as a sign that participants felt to have benefit by the training. And an important message is that it is very well possible to implement an age specific treatment protocol for adolescents with BPD traits.

Treatment of BPD in adolescence is still in its teens. Few treatment protocols have been investigated, but none have shown sufficient evidence of additional effectiveness (Chanen et al., 2008c; Ougrin et al., 2012; Schuppert et al., 2009). However, since more is known about the serious adverse outcome in the long-term (see chapter 1), "wait and see" is no option. Future research should not only aim at demonstrating effectiveness of the treatment module as a whole, but should also have a close look at what are the active ingredients. Demonstrating effectiveness is even more important in the current time of accountability, cost reductions and calls for cost-effectiveness of interventions. In this regard, it would

also be interesting to examine differences in effectiveness between different countries. The standard of psychiatric care for children and adolescents in the Netherlands is rather high. It is conceivable that the additional effect of treatment interventions such as ERT is larger than care as usual in countries where standard psychiatric care is less developed and/or accessible.

Parental rearing and parental stress in families of adolescents with BPD symptoms

Chapter 5 investigated actual parenting and parental psychopathology in a sample of 101 adolescents with BPD traits, and 44 healthy controls. Adolescents in the BPD group reported less emotional warmth, more overprotection, and more rejection compared to the adolescents in the control group. Mothers of adolescents with BPD traits, reported more general psychopathology, and more cluster C personality symptoms than mothers of the control group. However, no differences between groups were found on cluster A and cluster B personality symptoms. Hierarchical logistic regression revealed that less emotional warmth, more overprotection, and general psychopathology in mothers all uniquely contributed to the variance of severity of BPD symptoms in adolescents.

Chapter 6 described the results of an examination of the relationship between BPD traits and perceived parental rearing, parental psychopathology, and parenting stress, in the sample of 101 adolescents with BPD traits, and their mothers. No correlation was found between severity of BPD symptoms in adolescents and parenting stress. Multiple regression analyses revealed that only perceived parental overprotection was significantly related to severity of BPD symptoms. Also, the interaction between perceived parental overprotection, and cluster B personality traits in mothers, was significantly related to severity of BPD symptoms.

Though several studies examined the relationship between parental rearing factors and BPD (Cheng et al., 2011; Nickell, Waudby and Trull, 2002; Johnson et al., 2006; Zanarini et al., 1997), most studies are community-based, and retrospective rather than prospective. The evidence for the role of maternal rearing factors is still rather unclear. The findings from our studies on actual parental rearing styles, are to a large extent in line with the Children in the Community (CIC) study (Johnson, et al., 2006). In this longitudinal study an association was found between aversive parental behaviour and low parental affection. However, our studies did not replicate their findings on parental psychopathology: in the CIC study, no association was found between parental psychopathology and increased risk for BPD in the offspring.

The aim of our studies was to explore possible moderators in the developmental pathways to BPD. Our results (adolescents with BPD symptoms being raised by

less emotional warmth, more overprotective, and more rejective mothers than healthy controls; their mothers being more anxious/fearful), may contribute to the development of interventions that incorporate these findings. For example, the attribution of family interventions might increase more healthy parenting skills, like encouraging independency in harmony and without neglect. Also, attention should be paid to parenting stress and to the mental health status of parents themselves in the treatment of adolescents with BPD.

Some strengths and limitations of these explorations can be noted. First, as far as we know, this is the first study in adolescents with BPD traits that combined parental rearing styles, parental psychopathology, parental stress and borderline severity into one model. Another strength is that assessments were not only made in adolescents with BPD traits, but also in a healthy control group.

There are of course also some limitations to note. First, a cross-sectional design was used, which means that interpretation needs caution. Correlations have been found, but do not give information on causal relations. Further research, preferably longitudinal trials over a long period of time, is needed to give definite answers. Next, both the BPD and the control sample consisted of cooperative adolescents and their mothers. This might have given a bias, for example, when especially adolescents/mothers from families with severe emotional invalidation did not want to participate in such a trial. Third, only data from the mothers has been presented. Initially, assessments were also conducted in fathers. However, only 44% of the fathers in the BPD group participated, and 74% of the fathers in the control group. Most of the participating fathers came from intact families. It was hypothesized that this would give so much bias that interpretation would be too difficult. Finally, it would have been useful to have a full inventory of both axis I and axis II pathology in both groups.

To conclude, the results of our studies on parental factors in the development of BPD in adolescents, indicate the importance of involving parents in treatment interventions for BPD. Further, our studies modestly contribute to the disentanglement of developmental pathways that lead to BPD.

Clinical implications

The studies presented in this thesis demonstrate the importance to assess and treat BPD symptoms in adolescence. In the last decades it has become increasingly clear that BPD and its precursors are identifiable as early as in adolescence.

Research has shown that BPD has many causes (for an overview see Paris, 2003), some of them being related to the home environment. Interventions at an early stage and at a moment that one of the possible influences (parental rearing) can still be addressed, could be preferable to interventions at a more profound stage of the disorder. Despite the fact that this information has been known for quite some time now, there is a great paucity of age-specific treatment modules (Chanen et al., 2008c; Ougrin et al., 2012). Moreover, the international available manuals are poorly evaluated and scarcely spread. These facts are even more striking considering the amount of personal and familial burden, not only at first presentation, but also in the long-term.

The ERT manual was the first treatment module for adolescents with BPD symptoms in the Netherlands that was officially published. The developers of ERT were reluctant to release the manual before a trial on the effectiveness of the training was conducted. However, there were some good reasons for publication at an early stage. Shortly after the first ERT groups, the first experiences were presented at different congresses in the Netherlands. It became clear that there was great interest in a BPD treatment module for adolescents, even though it was not yet evaluated. Now, after two RCTs that were not able to demonstrate the additional effectiveness of ERT above treatment as usual, one can argue that the manual has been released too early. As a consequence, ERT needs to be revised and improved, or replaced by other, more effective treatments if available.

But despite the disappointing results, the whole project as presented in this thesis, has contributed to important progress in general clinical practice and research. First and foremost, BPD in adolescence (both assessment and treatment) is on the agenda, as can, for instance, be concluded from the establishment of two national committees in the Netherlands (Dutch Knowledge Centre for child and adolescent psychiatry, BPD workgroup; Trimbos Institute, BPD adolescents workgroup). Also, treatment of BPD symptoms in adolescence has become a topic of interest on international congresses, and the number of publications is increasing. More and more mental health workers are now less reluctant in diagnosing borderline symptoms in youth. They realise the importance of early detection and specific interventions for this group.

Second, the promising results on the BPDSI-IV adolescent and parent version, enable clinicians and researchers to track changes in the severity of borderline symptoms over time. The instruments are already available and are used by a number of mental health institutes, which exemplifies the need there is for specific measures. Furthermore, the possibility of a multi-informant approach may enhance the opportunity to obtain a full picture of the psychopathology of the adolescent.

Third, the results of the study on parental rearing, parental psychopathology, and parenting stress in families of adolescents with BPD symptoms, confirmed that these factors may play a part in the development of BPD, and challenged the specificity of the transgenerational occurrence of BPD features.

Future research

Can be stated that ERT is useless and should never be applied in the future? No, it cannot. As in RCTs that show positive results, also negative results should be replicated to be sure of the merits. In the pilot study, adolescents in the ERT group showed more improvement on locus of control compared to the control group; even though this did apparently not lead to symptom reduction, it may have given the youth a better starting point for individual therapy. On the other hand, one should not ignore the present findings, and cling to the presumption that ERT is effective. The program should at least be submitted to a critical examination of possible contributing and confounding factors. Since other treatment programs for adolescents with BPD symptoms are currently being conducted (DBT-A, MBT-A, SFT, and CAT; personal communication), it will be interesting to combine the findings. Most of these interventions are better embedded in a particular theory than ERT. So far, these treatment programs have been poorly evaluated, and there is only limited evidence for their effectiveness.

Regarding the poor results of our RCTs, some considerations can be made. Probably the ERT program is too short and too limited for adolescents with such serious problems. Alternatively, some of the adolescents might have had too little internal motivation. Also, extensive assessment of both axis I and axis II disorders may be needed to identify adolescents at risk. There is a clear need of research into which specific group of BPD adolescents benefits the most from one or the other kind of treatment. A combination with concurrent individual therapy would be interesting. The difference with DBT-A would be that the program is still less intensive and not limited to adolescents with severe psychopathology. And, as stated above, based on the results of our studies on parenting factors, the addition of a family module to the ERT module may be therapeutically wise in a large number of cases. A comparable model is proposed by Chanen et al. (2009), though without a group skills training and based on the Cognitive Analytic Therapy model.

We only briefly examined specific elements of the ERT. It would have been

interesting to specifically examine cognitions on emotion regulation, or the effect of the modification plans. It is conceivable that the adolescents in the ERT group made significant improvement on these elements of the training, without a significant effect on the core symptoms of BPD. Also, it would have been interesting to examine changes in motivation. In this respect, adolescents that completed the ERT, might be better able to benefit from further treatment.

Successful psychotherapeutic programs in adult BPD patients offer a predictable structure, with highly involved therapists, and aim to improve emotion regulation and problem-solving (Paris, 2010). One of the shortcomings of ERT might be that it is insufficiently embedded in a theoretical model, and probably resembles treatment as usual too much. ERT is clearly in search of a theory. The group training may be conducted as one of the elements of an integrated treatment model, that should comprise extensive assessment of both axis I and axis II diagnoses, individual therapy, family interventions, crisis management, and staff supervision. The underlying theoretical model may be based on emotion regulation theory. Emotional dysregulation has since long been identified as one of the core symptoms of BPD (e.g., Linehan, 1996; Putnam and Silk, 2005; Skodol et al., 2002). Research has confirmed the importance of the concept, and has found psychological and biological factors such as less ability to tolerate stress, or low parasympathetic activity in response to emotional stress (Gratz, Rosenthal, Tull, Lejuez, and Gunderson, 2006; Kuo and Linehan, 2009; Schulze et al., 2011). Increasing evidence has demonstrated that problems in emotion regulation also play an important role in other mental disorders than BPD, among which depression, substance related disorders, anxiety disorders, and PTSD (for an overview see Berking and Wupperman, 2012). Interesting in the field of research on emotion regulation is the work of Gross (1998; John and Gross, 2004), who developed a process-oriented model of emotion regulation. Gross divides down-regulating strategies for emotions into two categories: 1. The antecedent-focused strategy of cognitive reappraisal, and 2. The response-focused strategy of expressive suppression. Research has shown that reappraisal is often adaptive, while suppression is more often maladaptive (John and Gross, 2004; Gross, 2002). Treatment interventions in the context of ERT may focus on improvement of reappraisal, and on recognition and decrease of suppression. An adaptation of the ERT program, embedded in such a clear theoretical model, might contribute to improved treatment of symptoms of BPD in adolescence, and might prevent the adverse outcome in the long-term. Considering possible predictors of treatment outcome, we found less improvement in adolescents who showed high levels of

depression, and a history of abuse. Since Gross' theoretical model (1998) of emotion regulation is not specific for BPD, but has also been studied in other mental disorders (such as affective disorders, PTSD, substance-related disorders), it enhances the possibility of developing transdiagnostic treatment strategies, that include the whole scope of additional and co-morbid problems in BPD.

In general, future research on treatment of BPD in adolescence should investigate contributing and confounding factors. It is very interesting and challenging to attempt to disentangle the various elements of therapy. For instance, what is the additional effect of parent involvement in treatment, is a group approach an obvious mean, what are useful characteristics of the therapist, what is the optimal duration? From the results in the present thesis, it can be concluded that a relatively small and time-limited intervention is insufficient to cause significant changes. Development and/or improvement of age-specific treatment protocols for adolescents with BPD symptoms should include family interventions, and should take into account axis I disorders like depressive symptoms, anxiety, and PTSD.

Longitudinal studies are needed to examine the effect of treatment over time. As is often the case in developmental processes, the effect of an intervention might not be obvious from the instance. It is imaginable that treatment of borderline symptoms in adolescence displays its effect only a couple of years later. Long-time follow-up studies will be needed to unravel the course of BPD after treatment.

Finally a closing remark of Joel Paris (2010): "There should be only one kind of psychotherapy for BPD - the one that works. An integrated method might use the best ideas from everyone and put them together into one package."

Chapter 8 References

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Summary

Diagnosing personality disorders in adolescence has long been controversial, both in clinical practice and in research. Personality is still developing at a young age, and personality disorder symptoms were supposed to be too unstable at that age. Recent research has found ample evidence for a valid and reliable diagnosis in adolescence, and, more specifically, for borderline personality disorder (BPD). Though these findings have led to an increasing interest in adolescent BPD in clinical practice as well as in research, little age-specific assessment instruments and even less treatment protocols have been developed and evaluated. This PhD research project contributes to the development of both assessment instruments and treatment protocols for adolescents with BPD symptoms. Further, this thesis aims to make a modest contribution to the disentanglement of the developmental pathways of this complex and severe disorder.

Chapter 1 gives a brief description of the current knowledge of the development and prognosis of BPD in adolescents. The prevalence of BPD in adults is estimated at 1-3%. Though figures in studies with adolescents vary, the prevalence of BPD may be at least as high as in adulthood. There is no single cause that explains the development of BPD. In general, an interaction between biological and psychosocial factors is considered to be the best explanatory model. Longitudinal studies show a decline of the number of personality disorder traits over time. However, symptoms of BPD in adolescence are a predictor for serious psychopathology and psychosocial dysfunctioning later in life, such as lower academic and occupational attainment, less partner involvement, and a higher consumption of healthcare services. Assessment instruments for adolescents with BPD symptoms are scarce, and focus on the examination of personality traits, rather than on severity of symptoms. Also, few age-specific treatment modules, mostly based on treatment protocols for adult BPD patients, have been developed. However, these protocols have hardly been evaluated in randomized controlled trials. Chapter 1 provides an overview of assessment instruments and treatment protocols for adolescents with BPD (symptoms).

Chapter 2 describes a study on the psychometric properties of the Borderline Personality Disorder Severity Index (BPDSI), adolescent and parent version. These semi-structured interviews are based on the nine BPD criteria as described in DSM-IV, and are an adaptation of the BPDSI-IV for adult BPD patients. For each item the frequency in the past three months is rated. Adolescents with BPD symp-

toms (N=122; age 14-19 years), referred to mental health centres, as well as their parents/caretakers were assessed, and were compared to 45 healthy controls (age 14-19 years). The internal consistency of all nine subscales (following the nine BPD symptoms in DSM-IV), and the interrater reliability proved to be good to excellent. The adolescents in the clinical sample had much higher scores on all subscales of the BPDSI. Discriminant, concurrent, and construct validity were satisfactory. In addition, cut-off scores that optimise sensitivity and specificity were derived. Informant agreement between adolescents and parents/caretakers was modest, which is in line with comparable studies. One could argue that the assessment of adolescents alone is sufficient to obtain information on borderline severity. On the other hand, disagreement between adolescent and parent can be seen as an opportunity to use valid and additional information. The two versions of the BPDSI presented in this study are the first instruments that assess severity of borderline symptoms in adolescence. In conclusion, the instruments are valid and reliable, and are useful for the assessment of BPD severity in adolescents.

Chapter 3 reports on a randomized controlled pilot study (RCT), to evaluate the effectiveness of the Emotion Regulation Training (ERT). This training has been developed for adolescents with symptoms of BPD. First, the background and a description of the training is given. ERT is a 17-session group training that was based on STEPPS (Systems Training for Emotional Predictability and Problem Solving), a group training for adult BPD patients. The pilot study was performed in five mental health centres in the North of the Netherlands. Adolescents (N=43; age 14-19 years) were randomized to ERT plus treatment as usual (TAU) (N= 23), or to TAU alone (N=20). Assessments included severity of BPD symptoms, locus of control, and internalizing and externalizing behavior. Both groups improved equally over time on the primary outcome measures of BPD severity (though with low effect size: 0.16-0.33), but the ERT group showed significantly more improvement on internal locus of control (effect size 0.67). The attrition rate was high, which complicated the interpretation of the results of the study. The results were less positive than expected, which can be explained by several factors, such as a lack of statistical power due to the relatively low sample size, the contents of the ERT program itself, and the lack of appropriate assessment tools for adolescents with BPD symptoms.

The modest results of the pilot study gave rise to further improvement of the ERT protocol, and the development of age-specific assessment instruments (as described in chapter 2). *Chapter 4* describes a larger RCT, to a great extent

methodologically comparable to the pilot RCT, but with an improved version of the ERT program, with newly derived instruments, and with more statistical power. Adolescents with BPD symptoms (N=109) were randomized to ERT plus TAU (N=55), or to TAU alone (N=54). The BPDSI adolescent version was used to assess BPD severity. Other outcome measures included general psychopathology, emotional dysregulation, locus of control, and quality-of-life. As in the pilot study, both groups improved equally over time on all outcome measures, though with larger effect sizes than in the pilot study (range 0.41 to 0.54 on the borderline severity scales). After approximately six months of treatment, 19% of the ERT group was remitted according to the cut-off score on the BPDSI, versus 12% of the control group, though this difference between groups is not statistically significant. Follow-up assessments at twelve months after baseline were completed by the ERT group only, and showed further improvement on all outcome measures (effect sizes ranging from 0.48 to 0.75). Adolescents with worse outcome were characterized by a history of abuse and higher levels of depression or ADHD/ODD at baseline, regardless of treatment condition. We found no baseline characteristics that were related to outcome in a specific treatment condition. The attrition rate (both for the treatment and for the assessments) was remarkably low: 81% of the ERT group completed the treatment, 91% of the adolescents participated in the second assessment, and 76% of the ERT group completed the third assessment. The low attrition may be seen as an indication of the feasibility of both treatment and research with youngsters with BPD symptoms. However, the results regarding the effectiveness of the ERT were again poor, despite of the larger power in the current study. This emphasizes the strong need for the identification of effective treatments for adolescents with BPD symptoms.

Several factors are considered to contribute to the developmental pathways to BPD, such as a strong genetic predisposition and environmental factors. Most of these factors have been investigated retrospectively in adults. The study described in *chapter 5* reports on differences in actual parenting behavior and parental psychopathology between adolescents with BPD symptoms (N=101; age 14-19 years), a healthy control group (N=44; age 14-19 years), and their mothers. Adolescents with BPD symptoms reported to have perceived more overprotection, more rejection, and less emotional warmth from their mothers than the adolescents control group. Further, mothers of adolescents with BPD symptoms reported more symptoms of general psychopathology. An interesting finding was that mothers in both groups reported the same level of cluster B personality traits, but an increased level of cluster C traits. Hierarchical logistic regression revealed

that two maternal rearing styles (less emotional warmth, and more overprotection) and general psychopathology of the mother were the strongest factors differentiating between the two groups. These findings may contribute to the development of additional family interventions to treatment programs for adolescents with BPD symptoms, focusing on reinforcement of family interactions, and improvement of mental health in mothers of adolescents with BPD symptoms. This might improve the effectiveness of early interventions, and thus prevent the adverse outcome that is often seen in adult BPD patients.

Chapter 6 describes an examination of potential predictors of severity of borderline symptoms in adolescence. Actual parental rearing styles and parental psychopathology, in relationship with severity of BPD symptoms, has rarely been studied. Moreover, parenting stress has not yet been examined in this group. In the present study, adolescents with BPD symptoms (N=101; age 14-19 years) and their mothers were included. Severity of BPD symptoms and maternal rearing styles were assessed in the adolescents, and psychopathology and parenting stress were assessed in mothers. Multiple regression analyses were used to examine potential predictors of severity of borderline symptoms.

Parenting stress appeared unrelated to severity of BPD symptoms in the adolescents. However, maternal overprotection (as perceived by the adolescents) was significantly related to BPD severity: higher levels of parenting stress were associated with more overprotection. There are several possible explanations for this association. Adolescents with severe BPD will generate worry and concern in their relatives. Mothers might overprotect them in order to prevent further decline. Another explanation might be that mothers who have a tendency to overprotect their children, might arouse BPD problems in adolescents that are already vulnerable for BPD traits.

Also, high levels of perceived maternal rejection, in combination with high levels of cluster B traits in mothers, was associated with lower borderline severity in adolescents. The interpretation of this interaction effect is puzzling. A tentative interpretation may be that these adolescents did no emotionally depend on their mother, but may have found another primary attachment figure, which may have protected them to some extent.

The current study provides a small contribution to the disentanglement of developmental pathways that lead to this complex and severe disorder. Further, this study, as well as the study described in chapter 5, may give rise to the development or improvement of early interventions for borderline symptoms in adolescence, that include a systemic approach.

In *chapter* 7, the general conclusions of the project are presented and critically discussed, in the light of the strengths and limitations of the studies, including implications for clinical practice and recommendations for future development and research. The main strength of this thesis is the number of adolescents and their parents that participated. Chapter 4 presented the largest RCT in adolescent BPD research up till now, with low attrition rates. Also, the first semi-structured interview to assess severity of BPD symptoms in adolescence (including a parent version) has been presented in chapter 2, and has been validated. Another strength is the assessment of actual parental behavior, combined with data on parental psychopathology and parenting stress. Of course, there are also several limitations that are addressed in chapter 7. Due to time constraints, no formal diagnostic interviews on axis I and axis II disorders have been made, rather than on BPD. Next, ERT is not grounded in a particular theory. Also, the information obtained on the treatment as usual was limited. However, even though the negative results in the RCTs are disappointing, they provide an opportunity to develop and/or improve BPD treatment protocols in adolescence. There is a clear need for such age-specific treatment protocols, and the awareness of the existence of BPD symptoms in adolescents may help to specifically address these symptoms. Early interventions may prevent the adverse outcome that is so often seen in the long-term.

Samenvatting

Daniëlle is een meisje van 16 jaar dat door de huisarts is verwezen naar de polikliniek voor kinder- en jeugdpsychiatrie. Al meer dan een jaar snijdt ze regelmatig met een mesje of met een schaar in haar onderarmen. Ook heeft ze een keer een stuk of tien tabletten paracetamol ingenomen, nadat ze ruzie had gehad met haar beste vriendin. Daniëlle heeft vaak ruzie met haar vrienden, maar ze wil ze ook niet kwijt. Iedere dag zoekt ze contact met hen via Hyves, MSN, sms'jes en telefoontjes. Ze vraagt of ze nog wel vrienden zijn en ze raakt in paniek als het even duurt voordat haar vrienden reageren. Ze voelt zich dan eenzaam en in de steek gelaten. De laatste tijd spijbelt Daniëlle vaak: ze doet alsof ze 's morgens naar school gaat, maar ze dwaalt door de stad of ze hangt rond op het station. Toen haar moeder daar een paar weken geleden achter kwam, hebben ze heel erg ruzie gehad. Daniëlle heeft haar moeder vreselijk uitgescholden en ze heeft gedreigd met zelfmoord. Daarna heeft ze zichzelf steeds vaker en dieper gesneden. Haar stemming kan heel snel wisselen: het ene moment is Daniëlle nog vrolijk en het volgende moment is ze ineens woedend of verdrietig. Ze voelt zich ellendig. Soms heeft ze het idee dat ze helemaal niets meer voelt. Ook heeft ze soms het gevoel dat ze in een film zit en dat de wereld om haar heen niet echt is.

De dingen die Daniëlle beschrijft, kunnen passen bij een borderline persoonlijkheidsstoornis (afgekort: borderline). Mensen met borderline hebben vaak last van snel wisselende emoties. Hun stemming kan plotseling omslaan. Vaak zijn ze impulsief. Ze denken vaak zwart-wit: een leraar of klasgenoot is bijvoorbeeld helemaal geweldig of waardeloos. In relaties en vriendschappen kunnen mensen met borderline extreem reageren. Het ene moment is alles nog oké, maar het volgende moment voelen ze zich in de steek gelaten. Vaak zijn er periodes waarin iemand met borderline zichzelf beschadigt, met zelfmoord dreigt of een zelfmoordpoging doet. Soms hebben ze last van een leeg gevoel van binnen. Of soms hebben ze het gevoel dat de wereld om hen heen niet echt is.
Hulpverleners in de psychiatrie en onderzoekers hebben lang geaarzeld met het stellen van de diagnose borderline bij jongeren onder de 18 jaar. Een belangrijk argument hiervoor was dat jongeren nog volop in ontwikkeling zijn, vooral voor wat betreft hun persoonlijkheid. Men dacht dat de persoonlijkheid bij volwassenen heel stabiel was en bij jongeren nog sterk kon veranderen. In de afgelopen 20 jaar is er steeds meer onderzoek gedaan naar de ontwikkeling van de persoonlijkheid. We weten nu dat persoonlijkheidskenmerken ook bij volwassenen vaak nog veranderen. We weten ook dat de persoonlijkheid bij jongeren al re-

delijk stabiel is. De diagnose borderline mag ook bij jongeren gesteld worden. In de praktijk gaan hulpverleners vaak voorzichtig om met het stellen van de diagnose. Vaak wordt er daarom gesproken van kenmerken van borderline.
Het onderzoek naar de ontwikkeling van de persoonlijkheid heeft veel nieuwe kennis opgeleverd. Toch zijn er nog maar weinig vragenlijsten, interviews en behandelingen ontwikkeld voor jongeren met borderline. In dit proefschrift worden verschillende onderzoeken beschreven die als doel hebben de hulp voor jongeren met borderline kenmerken te verbeteren.

Het proefschrift begint in *hoofdstuk 1* met een algemene inleiding. Er wordt een samenvatting gegeven van wat we weten over de ontwikkeling van borderline bij jongeren. Over hoe het ontstaat, maar ook over hoe het later met deze jongeren gaat als ze volwassen zijn. We weten dat borderline bij één tot drie procent van alle volwassenen voorkomt. Het is niet precies bekend hoe vaak het voorkomt bij jongeren, maar waarschijnlijk is dat minstens zo vaak als bij volwassenen. Er is niet slechts één oorzaak van borderline. Waarschijnlijk wordt borderline veroorzaakt door een combinatie van verschillende factoren. Erfelijke factoren, opvoedingsfactoren, het meemaken van nare (traumatische) gebeurtenissen en waarschijnlijk spelen nog wel meer dingen een rol. Langdurende onderzoeken (van bijvoorbeeld wel 20 jaar) hebben aangetoond dat het aantal kenmerken van een persoonlijkheidsstoornis geleidelijk afneemt. Deze onderzoeken hebben ook aangetoond dat het op latere leeftijd vaak minder goed gaat met iemand die als jongere al borderline kenmerken had. Vaak heeft zo iemand een minder goede opleiding, een minder goede baan en minder vaak een vaste partner. Bovendien maakt zo iemand meer gebruik van de gezondheidszorg.
Voor jongeren met kenmerken van borderline is nog niet zoveel ontwikkeld. Er zijn enkele vragenlijsten en interviews om na te gaan of een jongere inderdaad borderline kenmerken heeft. Er zijn een paar behandelmethoden ontwikkeld, maar van de meeste behandelingen is nog niet onderzocht of ze goed werken. In hoofdstuk 1 wordt een samenvatting gegeven van de vragenlijsten, interviews en behandelmethoden die er wereldwijd zijn.

Hoofdstuk 2 gaat over een onderzoek naar de kwaliteit van twee nieuwe interviews: de Borderline Personality Disorder Severity Index (BPDSI), een versie voor jongeren en een versie voor ouders. Deze interviews zijn een bewerking van een interview voor volwassenen met borderline. Voor het onderzoek zijn 122 jongeren met borderline kenmerken geïnterviewd, en 45 jongeren zonder psychische problemen. Ook hun ouders of verzorgers zijn geïnterviewd. De interviews blijken geschikt en betrouwbaar te zijn voor het meten van de ernst van

borderline kenmerken bij jongeren. Er is uitgerekend bij welke score er vrijwel zeker geen sprake is van borderline kenmerken. Dat blijkt bij een score van zes punten op het hele interview te zijn. Er is een behoorlijk groot verschil tussen de scores van de jongeren en de scores van hun ouders. Ouders geven gemiddeld lagere scores dan jongeren. Zulke verschillen zijn ook gevonden in heel andere onderzoeken, bijvoorbeeld bij jongeren met gedragsproblemen of met depressieve klachten. De conclusie van hoofdstuk 2 is dat de interviews die onderzocht zijn, heel geschikt en bruikbaar zijn.

In *hoofdstuk 3* wordt een onderzoek (pilot) beschreven naar de werkzaamheid van een nieuwe behandelmethode voor jongeren met borderline kenmerken. Deze training, de Emotieregulatie Training (ERT), wordt aan groepen van zes tot negen jongeren gegeven en duurt in totaal 17 weken. ERT is gebaseerd op een training voor volwassenen met borderline (STEPPS: Systems Training for Emotional Predictability and Problem Solving). Aan het onderzoek deden 43 jongeren mee, die in behandeling waren bij vijf verschillende instellingen voor kinder- en jeugdpsychiatrie. De jongeren waren 14-19 jaar oud. Door loting werd bepaald of ze mee konden doen aan de ERT of dat ze de gebruikelijke behandeling kregen. Jongeren die waren ingeloot voor de ERT-groep (dat waren er 23) kregen daarnaast ook nog de gebruikelijke behandeling. Alle jongeren kregen een uitgebreid interview en vulden vragenlijsten in voordat het onderzoek begon (eerste meting). Na afloop van de ERT, na ongeveer een half jaar, kreeg iedereen nog een keer dezelfde interviews en vragenlijsten voorgeschoteld (tweede meting). Door te kijken naar verschillen tussen de twee groepen kon worden bepaald of de ERT een meerwaarde had boven de gebruikelijke behandeling. Er werd gevraagd naar de ernst van de borderline kenmerken, naar emotionele problemen, gedragsproblemen en 'interne locus of control'. 'Locus of control' is een term uit de psychologie. Er wordt mee aangeduid in hoeverre iemand de oorzaak van datgene wat hem of haar overkomt bij zichzelf (intern) zoekt of juist buiten zichzelf (extern) legt.
Bij beide groepen verminderde de ernst van de borderline kenmerken even sterk, maar de scores bleven vrij hoog. De groep die de ERT had gevolgd verbeterde sterker op 'interne locus of control'. Tijdens het onderzoek haakten veel jongeren af, wat het lastig maakte om de resultaten goed te beoordelen. De resultaten waren minder positief dan we gehoopt hadden. Dat kan verschillende oorzaken hebben. Het kan komen doordat er niet genoeg jongeren meededen (in onderzoekstermen: te weinig statistische power). Het kan komen doordat de inhoud van de ERT niet goed genoeg was of dat een training van 17 weken te kort is.

Een andere reden kan zijn dat de gebruikelijke behandeling in Nederland al best goed is. En verder kan het zijn dat de interviews en vragenlijsten die gebruikt werden in het pilot onderzoek niet geschikt zijn voor jongeren met borderline kenmerken.

De tegenvallende resultaten van het pilot onderzoek (hoofdstuk 3) waren de aanleiding de ERT te verbeteren. Ook besloten we interviews en vragenlijsten te ontwikkelen speciaal voor jongeren met borderline (kenmerken), zie hoofdstuk 2. In *hoofdstuk 4* wordt een groter onderzoek beschreven. Qua opzet lijkt dit onderzoek sterk op het pilot onderzoek, maar nu met een verbeterde versie van het ERT-programma, met nieuwe interviews en vragenlijsten en met meer statistische power. Er deden 109 jongeren met kenmerken van borderline mee aan dit onderzoek. Door loting werd bepaald dat 55 jongeren een combinatie kregen van ERT en de gebruikelijke behandeling. De andere 54 jongeren kregen alleen de gebruikelijke behandeling. De adolescentenversie van de BPDSI (zie hoofdstuk 2) werd gebruikt om de ernst van de borderline kenmerken te bepalen. Verder vulden de jongeren vragenlijsten in over verschillende psychische klachten, emotionele klachten, 'locus of control' en kwaliteit van leven.
Van alle jongeren voldeed 73% aan de criteria van een borderline persoonlijkheidsstoornis. Zij hadden dus niet alleen maar kenmerken van borderline, maar bij hen kon zelfs op jonge leeftijd de diagnose al gesteld worden. De gebruikelijke zorg bestond in de periode tussen de eerste en de tweede meting gemiddeld uit vijf individuele gesprekken en drie gezinsgesprekken. Dat gold zowel voor de jongeren die de ERT hadden gevolgd als voor de jongeren die in de controlegroep zaten. Net als in het pilot onderzoek verbeterden de jongeren op de belangrijkste maten (zoals ernst van de borderline kenmerken), zelfs sterker dan in het pilot onderzoek. De vermindering in klachten was voor beide groepen even groot. Na ongeveer zes maanden behandeling had 19% van de jongeren uit de ERT-groep minder dan zes punten op de BPDSI. Dat is de score waarbij vrijwel zeker geen sprake meer is van overmatige borderline kenmerken. In de controlegroep gold dat voor 12% van de jongeren. Dit verschil tussen de twee groepen berust statistisch gezien op toeval. Met bepaalde jongeren ging het na de behandeling minder goed dan met anderen. Dat gold met name voor jongeren die voorafgaand aan de behandeling meer last hadden van somberheid, ADHD-kenmerken of gedragsproblemen, of die vroeger mishandeld of misbruikt werden.
Opvallend veel jongeren bleven meedoen aan het programma: 81% van de ERT-groep maakte de training af. En zelfs 91% van de jongeren kwam terug voor

de tweede meting en 76% van de jongeren uit de ERT-groep kwam bovendien terug voor een derde meting. Deze hoge percentages zou je kunnen zien als een aanwijzing dat behandeling en onderzoek met deze jongeren belangrijk en haalbaar is.
Het is jammer dat ook de resultaten van het grotere onderzoek tegenvielen. Er is hiermee voor jongeren met borderline kenmerken nog steeds geen behandelmethode waarvan is aangetoond dat het goed werkt. Het is daarom belangrijk dat we blijven zoeken naar werkzame behandelingen voor deze jongeren. Misschien moet de behandeling worden uitgebreid met individuele gesprekken naast de ERT of misschien zouden ouders meer bij de behandeling moeten worden betrokken.

Er zijn veel verschillende factoren die meespelen bij het ontstaan van een borderline persoonlijkheidsstoornis. Zo spelen erfelijkheid en omgevingsfactoren (bijvoorbeeld hoe je bent opgevoed of wat je in je kindertijd hebt meegemaakt) een belangrijke rol. Onderzoek naar deze factoren is meestal gedaan bij volwassenen die terugkeken op hun jeugd. In *hoofdstuk 5* wordt een onderzoek beschreven naar verschillende manier van opvoeden en naar psychische klachten van moeders van jongeren met borderline kenmerken. Er werden twee groepen met elkaar vergeleken: een groep van 101 jongeren met borderline kenmerken en hun moeders, en een controlegroep van 44 jongeren zonder psychische klachten en hun moeders. We vonden veel verschillen tussen de twee groepen. De jongeren met borderline kenmerken gaven vaker dan de controlegroep aan dat ze overbeschermd werden opgevoed en met minder emotionele warmte. Hun moeders gaven zelf aan dat ze meer last hadden van angst en depressieve klachten. We hadden gedacht dat de moeders van jongeren met borderline kenmerken zelf ook vaker last zouden hebben van borderline kenmerken. Dat bleek in dit onderzoek niet zo te zijn. Wel hadden ze vaker kenmerken van een ontwijkende of vermijdende persoonlijkheid. Mensen met deze persoonlijkheidskenmerken voelen zich vaak onzeker en minderwaardig en ze hebben de neiging onbekende situaties te vermijden. Uit het onderzoek kwamen drie factoren naar voren die het sterkst verschilden tussen de twee groepen. Dat waren twee opvoedingsfactoren (overbescherming en emotionele warmte) en psychische klachten van de moeders.

In *hoofdstuk 6* wordt bekeken of er factoren te vinden zijn die de ernst van kenmerken van borderline bij de jongeren kunnen voorspellen. Aan dit onderzoek

deden 101 jongeren met kenmerken van borderline mee. Ook hun moeders vulden verschillende vragenlijsten in. Aan de jongeren werden vragen gesteld over de ernst van hun borderline kenmerken en over hun visie op hun opvoeding. Hun moeders vulden vragenlijsten in over hun eigen psychische klachten en over hoeveel stress ze hadden bij de opvoeding van hun kind met borderline kenmerken. In het onderzoek werd geen relatie gevonden tussen de mate van ouderlijke stress en de ernst van de borderline kenmerken bij jongeren. Er was wel een sterk verband tussen een overbeschermende opvoeding en ouderlijke stress. Ook werd er een sterk verband gevonden tussen de ernst van de borderline kenmerken aan de ene kant en een combinatie van een afwijzende opvoeding en bepaalde persoonlijkheidskenmerken bij de moeder (onder andere borderline) aan de andere kant.
De resultaten van de onderzoeken in hoofdstuk 5 en 6 hebben een kleine bijdrage geleverd aan de zoektocht naar factoren die kunnen leiden tot een borderline persoonlijkheidsstoornis. De resultaten kunnen helpen bij het verder ontwikkelen van betere behandelmethoden voor jongeren met borderline kenmerken. Naast het behandelen van de jongeren zelf, zou het betrekken van de ouders bij de behandeling kunnen helpen. Bovendien kan het de moeite waard zijn ook aandacht te besteden aan psychische klachten die de ouders zelf hebben.

Hoofdstuk 7 geeft een kritische beschouwing op alle onderzoeken uit dit proefschrift. De sterke en de zwakke punten worden besproken. Er wordt aangegeven wat er in de praktijk met de resultaten van de onderzoeken gedaan kan worden en er worden aanbevelingen gedaan voor nieuw onderzoek.
Een van de sterkste punten van dit proefschrift is het aantal jongeren en ouders dat heeft meegewerkt. Het onderzoek dat beschreven is in hoofdstuk 4 is bijvoorbeeld het grootste onderzoek dat tot nu toe wereldwijd gedaan is naar de behandeling van jongeren met borderline kenmerken. Verder is er voor het eerst een interview ontwikkeld en onderzocht dat de ernst van borderline kenmerken bij jongeren kan bepalen. Bovendien is er ook een variant van dit interview speciaal voor ouders. Een ander sterk punt van dit proefschrift is dat er niet alleen onderzoek is gedaan bij jongeren met borderline kenmerken maar ook bij hun ouders. Er is gekeken naar psychische klachten van ouders en naar de stress die zij ondervinden bij het opvoeden.
Er zijn natuurlijk ook minder sterke punten van dit proefschrift. Zo is er bijvoorbeeld alleen globaal gekeken naar andere psychische klachten dan borderline kenmerken. Ook zou het kunnen dat de ERT niet goed genoeg gebaseerd is op een bepaalde theorie. Verder is er niet zoveel informatie verzameld over wat nou precies

de gebruikelijke behandeling was voor jongeren met borderline kenmerken.
De resultaten van de twee onderzoeken naar de ERT vallen tegen. Toch heeft het ons veel geleerd. De resultaten kunnen helpen bij het ontwikkelen en/of verbeteren van behandelmethodes voor jongeren met borderline kenmerken. We hebben gemerkt dat er veel behoefte is aan zulke behandelmethodes. In de afgelopen jaren zijn veel meer hulpverleners zich er bewust van geworden dat borderline al op jonge leeftijd kan beginnen. Door op jonge leeftijd te beginnen met de behandeling kunnen misschien veel problemen op langere termijn worden voorkomen.

Dank!

Het is zover, het ERT-onderzoek is af! Het was een grote klus en het is maar goed dat ik niet precies wist hoe groot. Dat het nu af is, heb ik in belangrijke mate te danken aan een fijne groep collegae, familie en vrienden, maar bovenal aan al die jongeren en hun ouders die mee hebben gewerkt.
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Helaas heeft dit onderzoek nog geen goed antwoord gegeven op de vraag hoe we borderline kenmerken bij jongeren het beste kunnen behandelen. Toch heeft het veel nieuwe aanknopingspunten opgeleverd voor het ontwikkelen van een werkzame behandeling. Voor de vele uren die jullie hebben meegewerkt aan interviews, vragenlijsten en natuurlijk aan een nieuwe behandelmethode, wil ik jullie van harte bedanken! Ik wil dit proefschrift graag aan jullie opdragen.

Maaike Nauta, mijn eerste copromotor, die mij van het begin af aan heeft ingepeperd dat er geen ME-busje klaar staat om me mee te nemen als ik een deadline niet haal. Wat was het een voorrecht dat jij mijn copromotor was en wat heb ik in de afgelopen jaren onvoorstelbaar veel van je geleerd. Je wist me op de juiste momenten aan te sporen, af te remmen, gerust te stellen, aan de hand te nemen, uit te dagen en af te leiden. Ik heb genoten van je analytische, praktische en heldere geest. Waar ik soms de neiging had een artikel of voordracht goed genoeg te vinden, wist je me (soms zelfs trans-Atlantisch) te stimuleren toch nog een stap verder te gaan. Je bleef vertrouwen in de goede afloop, ook toen bleek dat die goede afloop negatieve onderzoeksbevindingen betrof. Lieve Maaike, wat ben ik blij en trots dat ik jouw gezel mocht zijn. Ik hoop dat dit onderzoek het begin is van een lange samenwerking!

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Tonny van Gemert, Jaap Ringrose en Herman Wiersema, "ontwikkelaars" van de ERT. Het was 2002, ik was nog in opleiding tot kinder- en jeugdpsychiater en mijn supervisoren Tonny en Herman waren samen met Jaap bezig met het ontwikkelen van een nieuwe behandeling voor jongeren met borderline kenmerken. Dat was nog eens interessant! Na de eerste bijeenkomst van de eerste groep stonden Jaap en ik bij de deur: zo'n groep borderliners, dat zou wel heftig worden! Een keurig groepje meisjes verliet de ruimte, Tonny en Herman bleven achter met verhitte hoofden, razend enthousiast. Het enthousiasme bleef en al snel ontstond het idee de ERT te onderzoeken. Tonny, Jaap en Herman, bedankt dat jullie dat aan mij hebben toevertrouwd. Ook al zijn de resultaten anders dan gehoopt, jullie staan in Nederland aan de wieg van vroegtijdige diagnostiek en een gerichte aanpak van borderline bij jongeren.

Prof. dr. Frits Boer, prof. dr. Robert Schoevers, and prof. dr. Kenneth Silk, members of the reading committee. I would like to thank you for your efforts and your willingness to review this thesis. Dear Ken, thank you for your care, especially in preventing me from risky solo-walks through dangerous cities all over the world!

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En jij, mijn liefste lief, om het met Finkers te zeggen: ik heb je liever dan geluk. Dankjewel dat je er was, er bent en er zult zijn.

Curriculum Vitae

Hermine Maria (Marieke) Schuppert werd op 28 januari 1969 geboren in Holten. Ze behaalde haar Gymnasium-B diploma in 1987 aan het Christelijk Lyceum te Almelo. Aansluitend studeerde ze Geneeskunde aan de Katholieke Universiteit in Nijmegen waar ze in 1995 voor haar artsexamen slaagde. Tijdens haar wetenschappelijke stage werd ze begeleid door prof. dr. Frank Kortmann, die haar stimuleerde een eigen onderzoekje op te zetten naar de communicatie tussen arts en asielzoeker. Stellig van plan om huisarts te worden, besloot ze zich hierop voor te bereiden met een arts-assistentschap in de psychiatrie. In psychiatrisch ziekenhuis 'Franciscushof' te Raalte leerde ze in sneltreinvaart de basis van het vak en besloot ze haar plannen om te gooien. In 1997 werd ze aangenomen als assistent geneeskundige in opleiding tot psychiater, wat voor haar begon met het keuzejaar kinder- en jeugdpsychiatrie bij het Universitair Centrum voor Kinder- en Jeugdpsychiatrie (Accare). Ze vervolgde de opleiding tot psychiater bij GGZ Groningen (opleider: dr. Frits Milders). In 2002 keerde ze voor het aantekeningsjaar kinder- en jeugdpsychiatrie terug naar het UCKJP en in datzelfde jaar werd ze aangenomen als staflid op de polikliniek. Rond die tijd ontwikkelden drie collegae een training voor jongeren met kenmerken van een borderline persoonlijkheidsstoornis. Het onderwerp fascineerde haar en al snel ontstond het idee de training op haar effectiviteit te onderzoeken. Het Universitair Medisch Centrum Groningen kende in 2005 een subsidie toe voor een pilotstudy. Een jaar later werd Marieke toegelaten tot de Opleiding tot Onderzoeker in de Geestelijke Gezondheidszorg (OOG), een subsidie van ZonMW (Nederlandse organisatie voor gezondheidsonderzoek en zorginnovatie). Deze opleiding tot 'bruggenbouwer' tussen patiëntenzorg en wetenschap bleek haar op het lijf geschreven.

Naast haar werk als kinder- en jeugdpsychiater en als onderzoeker, is onderwijs een rode draad in haar werk. Marieke houdt zich al jaren bezig met zowel het preklinische als het klinische geneeskunde onderwijs en was een aantal jaren lid van de opleidingscommissie geneeskunde. Sinds 2010 is ze bovendien betrokken bij de opleiding tot (kinder- en jeugd)psychiater. In 2011 werd ze plaatsvervangend opleider kinder- en jeugdpsychiatrie bij Accare en sinds mei 2012 is ze beoogd opleider.